Johnston County

2018 Community Health Needs Assessment

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Executive Summary

Johnston County is pleased to present it is 2018 Community Health Needs Assessment. This report provides an overview of the methods and process used to identify and prioritize significant health needs in Johnston County.

Service Area

The service area for this report is defined as the geographical boundary of Johnston County, North Carolina. Johnston County is located well inland from the coastal portion of the state and has an area of 796 square miles, of which 791 square miles is land and 4.2 square miles is water.

Methods for Identifying Community Health Needs

Secondary Data

Secondary data used for this assessment were collected and analyzed from Conduent HCI's community indicator database. The database, maintained by researchers and analysts at Conduent HCI, includes over 100 community indicators from various state and national data sources such as the North Carolina Department of Health and Human Services, the Centers for Disease Control and Prevention and the American Community Survey. See Appendix B for a full list of data sources used.

Indicator values for Johnston County were compared to North Carolina counties and U.S. counties to identify a relative need. Other considerations in weighing relative areas of need included comparisons to North Carolina state values, comparisons to national values, trends over time, Healthy People 2020 targets and Healthy North Carolina 2020 targets. Based on these seven different comparisons, indicators were systematically ranked from high to low need. For a detailed methodology of the analytic methods used to rank secondary data indicators see Appendix B.

Primary Data

The primary data used in this assessment consisted of a community survey distributed through online and paper submissions and four focus group discussions. Over 1000 Johnston County residents contributed their input on the community's health and health-related needs, barriers, and opportunities, with special focus on the needs of vulnerable and underserved populations.

See Appendix C for all primary data collection tools used in this assessment.

Summary of Findings

The CHNA findings are drawn from an analysis of an extensive set of secondary data (over 100 indicators from national and state data sources) and in-depth primary data from community leaders, health and non-health professionals who serve the community at large, vulnerable populations, and populations with unmet health needs. Through a synthesis of the primary and secondary data, the significant health needs were determined for Johnston County and are displayed in Table 1.

Table 1. Significant Health Needs

Access to Health Services
Economy
Exercise, Nutrition & Weight
Heart Disease & Stroke
Other Chronic Diseases
Respiratory Diseases
Social Environment
Substance Abuse
Transportation

Selected Priority Areas

This well-established partnership to assess the community needs has allowed us to collaborate on the 2018 Community Health Needs Assessment and select the following focus areas as prioritized health needs:

1. Access to Health Services
2. Mental Health/Substance Abuse
3. Heart Disease & Stroke
4. Respiratory Diseases
5. Transportation

Conclusion

This report describes the process and findings of a comprehensive health needs assessment for the residents of Johnston County, North Carolina. The prioritization of the identified significant health needs will guide community health improvement efforts of Johnston County. Following this process, Johnston County will outline how they plan to address the prioritized health needs in their implementation plan.

Introduction

Johnston County is pleased to present the 2018 Community Health Needs Assessment, which provides an overview of the significant community health needs identified in Johnston County, North Carolina.

The goal of this report is to offer a meaningful understanding of the most pressing health needs across Johnston County, as well as to guide planning efforts to address those needs. Special attention has been given to the needs of vulnerable populations, unmet health needs or gaps in services, and input gathered from the community.

Findings from this report will be used to identify, develop and target initiatives to provide and connect community members with resources to improve the health challenges in their communities.

The 2018 Johnston County Community Health Needs Assessment was developed through a partnership between the Johnston County Public Health Department, Johnston Health, Health ENC and Conduent Healthy Communities Institute.

About Health ENC

Initiated in 2015 by the Office of Health Access at the Brody School of Medicine at East Carolina University, Health ENC grew out of conversations with health care leaders about improving the community health needs assessment (CHNA) process in eastern North Carolina. Health ENC, now a program of the Foundation for Health Leadership and Innovation (FHLI), coordinates a regional CHNA in 33 counties of eastern North Carolina. In addition, the Health ENC Program Manager works to build coalitions and partnerships that will address health issues identified through the regional CHNA process.

As part of the Affordable Care Act, not for profit and government hospitals are required to conduct CHNAs every three years. Similarly, local health departments in North Carolina are required by the Division of Public Health (DPH) in the NC Department of Health and Human Services (DHHS) to conduct periodic community health assessments as well. Local health departments have been required to submit their community health needs assessments once every four years. The particular year CHNA submissions are made by hospitals within a three-year cycle or by local health departments within a four-year cycle is not uniform across the state or region.

Additionally, although local health departments and hospitals have guidance from their respective oversight authorities on how to conduct and report the results of their CHNAs, that guidance allows for wide variations in the execution of these reports. The methodologies, specific data items gathered, the interpretation of the data as well as the general approach and scope of one CHNA may have little resemblance to a CHNA in another jurisdiction or conducted by another organization.

For these reasons, health care leaders across eastern North Carolina have partnered to standardize the CHNA process for health departments and hospitals in the region. This effort will also sync all participant organizations onto the same assessment cycle. Combining efforts of local health departments and hospitals in a regional CHNA will ultimately lead to an improvement in the quality and utility of population health data, the ability to compare and contrast information and interventions across geographic boundaries, and the reduction of costs for everyone involved, while maintaining local control and decision-making with regard to the selection of health priorities and interventions chosen to

address those priorities. Simultaneously, it will create opportunities for new and better ways to collaborate and partner with one another.

Upon receipt of generous funding support provided by The Duke Endowment, the Office of Health Access at ECU's Brody School of Medicine transferred administrative and operational responsibility for Health ENC to the Foundation for Health Leadership and Innovation in 2018. The project continues to be guided by a steering committee representing local health departments, hospitals and other stakeholders committed to improving the health of the people of eastern North Carolina.

Member Organizations

Health ENC is comprised of more than 40 organizations. Twenty-two hospitals, twenty-one health departments and two health districts participated in the regional CHNA.

Partner Organizations

- Foundation for Health Leadership & Innovation
- ECU Brody School of Medicine
- The Duke Endowment

Hospitals and Health Systems

- Cape Fear Valley Health (Cape Fear Valley Medical Center, Hoke Hospital and Bladen County Hospital)
- Carteret Health Care
- Halifax Regional Medical Center
- Johnston Health
- UNC Lenoir Health Care
- Nash Health Care System
- Onslow Memorial Hospital
- The Outer Banks Hospital
- Pender Memorial Hospital
- Sampson Regional Medical Center
- Sentara Albemarle Medical Center
- Vidant Beaufort Hospital
- Vidant Bertie Hospital
- Vidant Chowan Hospital
- Vidant Duplin Hospital
- Vidant Edgecombe Hospital
- Vidant Medical Center
- Vidant Roanoke-Chowan Hospital
- Wayne UNC Health Care
- Wilson Medical Center

Health Departments and Health Districts

- Albemarle Regional Health Services
- Beaufort County Health Department
- Bladen County Health Department
- Carteret County Health Department

- Cumberland County Health Department
- Dare County Department of Health and Human Services
- Duplin County Health Department
- Edgecombe County Health Department
- Franklin County Health Department
- Greene County Department of Public Health
- Halifax County Public Health System
- Hoke County Health Department
- Hyde County Health Department
- Johnston County Public Health Department
- Lenoir County Health Department
- Martin-Tyrrell-Washington District Health Department
- Nash County Health Department
- Onslow County Health Department
- Pamlico County Health Department
- Pitt County Health Department
- Sampson County Health Department
- Wayne County Health Department
- Wilson County Health Department

Steering Committee

Health ENC is advised by a Steering Committee whose membership is comprised of health department and hospital representatives participating in the regional CHNA, as well as other health care stakeholders from eastern North Carolina. The program manager oversees daily operations of the regional community health needs assessment and Health ENC.

Health ENC Program Manager

- Will Broughton, MA, MPH, CPH - Foundation for Health Leadership & Innovation

Health ENC Steering Committee Members

- Constance Hengel, RN, BSN, HNB-BC - Director, Community Programs and Development, UNC Lenoir Health Care
- James Madson, RN, MPH - Steering Committee Chair, Health Director, Beaufort County Health Department
- Battle Betts - Director, Albemarle Regional Health Services
- Caroline Doherty - Chief Development and Programs Officer, Roanoke Chowan Community Health Center
- Melissa Roupe, RN, MSN - Sr Administrator, Community Health Improvement, Vidant Health
- Davin Madden – Heath Director, Wayne County Health Department
- Angela Livingood – Pharmacy Manager, Pender Memorial Hospital
- Lorrie Basnight, MD, FAAP - Executive Director, Eastern AHEC, Associate Dean of CME, Brody School of Medicine
- Anne Thomas- President/CEO, Foundation for Health Leadership & Innovation

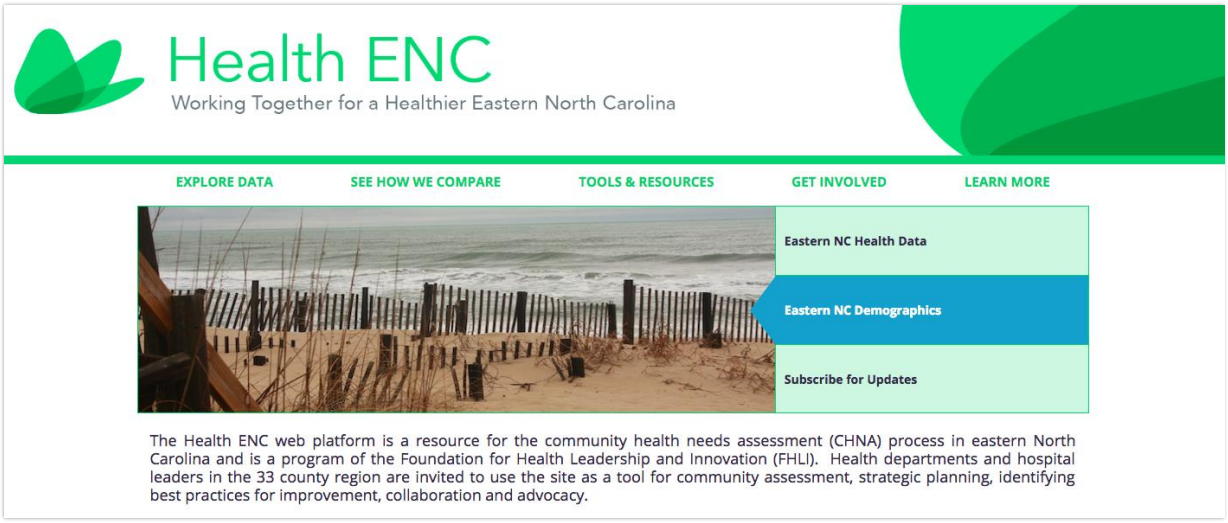
HealthENC.org

The Health ENC web platform, shown in Figure 1, is a resource for the community health needs assessment process in eastern North Carolina. The website serves as a "living" data platform, providing public access to indicator data that is continuously updated, easy to understand and includes comparisons for context. Much of the data used in this assessment is available on HealthENC.org and can be downloaded in multiple formats. Results of the 2018 Eastern North Carolina Community Health Survey can be downloaded by county or the entire Health ENC Region.

In addition to indicator data, the website serves as a repository for local county reports, funding opportunities, 2-1-1 resources and more. Health departments, hospital leaders and community health stakeholders in the 33-county region are invited to use the website as a tool for community assessment, strategic planning, identifying best practices for improvement, collaboration and advocacy.

Visit HealthENC.org to learn more.

Figure 1. Health ENC Online Data Platform



Consultants

Health ENC commissioned Conduent Healthy Communities Institute (HCI) to assist with its Community Health Needs Assessment.

Conduent Healthy Communities Institute is a multi-disciplinary team of public health experts, including healthcare information technology veterans, academicians and former senior government officials, all committed to helping health-influencing organizations be successful with their projects. Conduent HCI uses collaborative approaches to improve community health and provides web-based information systems to public health, hospital and community development sectors, to help them assess population health.

Conduent HCI works with clients across 38 states to drive improved community health outcomes by assessing needs, developing focused strategies, identifying appropriate intervention programs, establishing progress monitoring systems, and implementing performance evaluation processes. Working with diverse clients nationwide has contributed to Conduent HCI's national knowledge base of population health solutions. In addition, by engaging directly with clients and communities through the primary data collection process and final workshops, Conduent HCI works on behalf of our clients to build trust between and among organizations and their communities.

To learn more about Conduent HCI, please visit https://www.conduent.com/community-population-health/.

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Johnston Health and Johnston County Public Health Department Collaborative

Johnston Health and Johnston County Public Health Department are the lead agencies for the 2018 CHNA and partnered to develop this report.

Since opening the county's first public hospital in 1951, Johnston Health has grown into a two-campus health care system delivering a broad range of medical and surgical services, from labor and delivery to home health and hospice. Today, the system employs more than 1,600 at its hospitals in Smithfield and Clayton and has a medical staff of 320 physicians and specialists. Johnston Health is recognized nationally for its safety and patient satisfaction. Since joining UNC Health Care in 2014, the two systems have worked together to reduce expense, expand clinical capabilities and to improve access to care.

Johnston County Public Health Department (JCPHD) was established in 1922. Its mission is to provide quality healthcare, promote a safe environment, and partner with the citizens of Johnston County to foster healthy lifestyles. The health department has 140 employees and 5 service sites that provide clinical care, behavioral and environmental health, and WIC services to the residents of the county. JCPHD provides more than 22,000 preventive health, 10,000 behavioral health, and 15,000 environmental health encounters each year. As the community convener, the health department partners with a variety of groups, including Johnston Health, our local hospital, other providers of care, community-based organizations, the Johnston County Faith Network, our schools, and senior centers. Team members also serve on a diversity of boards and coalitions that provide the opportunity for sharing of information and gathering community input. Through these partnerships and collaborations, the health department strives to meet its vision: Healthy Johnstonians in All Communities.

In 1997, the hospital and county government joined together to build a new public health department adjacent to the hospital's new emergency department. At the time, the partnership was called one of the first of its kind in the nation. It has since led to greater efficiencies inpatient service and fostered easier communication and interaction among health care professionals. This Community Health Needs Assessment is the result of our continued partnership and commitment to improving the health of the people in our community.

Community Health Team Structure

The Johnston County Public Health Department and Johnston Health partnered with previously established community groups to engage residents and collect data for this report. These included the following Johnston County groups:

- Crisis Collaborative
- Faith Network Collaborative
- Opioid Task Force
- Round Table
- School Health Advisory Committee
- Diabetes Collaborative
- Network on Aging
- Safety Net Collaborative
- Truancy Intervention Partnership

The leads for the CHNA are:

- April Culver, JH, VP Marketing, Communications, and Strategy
- Kimetha Fulwood, JCPHD, Health Education Supervisor
- Leah Johnson, JH, Corporate and Community Outreach Coordinator
- Marilyn Pearson, MD, JCPHD, Health Director

Distribution

An electronic copy of this report is available on HealthENC.org.

This report will be available at johnstonnc.com/health and johnstonhealth.org.

Paper copies will be distributed to local libraries and a copy can be obtained by contacting Kimetha Fulwood, Health Education Supervisor, JCPHD, at 919-989-5200 or health_dept@johnstonnc.com.

Evaluation of Progress Since Prior CHNA

The community health improvement process should be viewed as an iterative cycle. An important piece of that cycle is revisiting the progress made on priority health topics set forth in the preceding community health needs assessment.

Johnston Health conducts a CHNA at least every 3 years and adopts an implementation strategy to meet the community needs. During the 2016 needs assessment, the following areas of need were identified: affordability/accessibility; cancer; mental health/suicide; coronary heart disease; diabetes; and physician recruitment.

Johnston County Public Health Department is required to assess the needs of the community at least every 4 years and completed its most recent CHNA in 2014. The focus areas identified were: access to care (both medical and behavioral health), obesity, and physical activity and nutrition to address the prevention of chronic disease and to promote healthy behaviors.

Although each assessment was completed during a different time period, the areas of need were identical—accessibility, behavioral health, and chronic disease. As we worked towards common goals, progress was made in multiple areas. Johnston Health has and continues to recruit primary care and subspecialty providers, offers community screenings for cancer, has expanded cardiac services and the ER now offers telemedicine and tele-psychiatry. Johnston County Public Health Department precepts and works with community providers to mentor future providers of care, partnered with our schools and churches to implement worksite wellness, walking programs and healthy nutrition programs, developed health literacy workshops, and established an opioid task force that obtained a grant to provide education, resources, and support to those affected by substance use and mental health concerns.

A detailed table describing the strategies/action steps and indicators of improvement for each priority area can be found in Appendix A.

Community Feedback on Prior CHNA

The 2016 Johnston Health Community Health Needs Assessment was made available to the public via https://johnstonhealth.org/community/news-resources/community-health-needs-assessment/ and the 2014 Johnston County Public Health Department Community Health Needs Assessment was available at www.johnstonnc.com/health. Community members were invited to submit feedback via online forum or to contact the health department with any comments. No comments had been received on the preceding CHNAs at the time this report was written.

Methodology

Overview

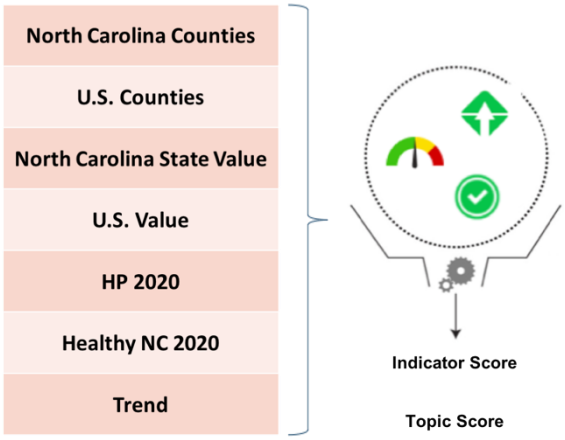
Two types of data are analyzed for this Community Health Needs Assessment: secondary data and primary data. Secondary data is data that has been collected from other sources while primary data has been collected directly as a part of this report. Each type of data is analyzed using a unique methodology, and findings are organized by health topic areas. These findings are then synthesized for a comprehensive overview of the health needs in Johnston County.

Secondary Data Sources & Analysis

The main source of the secondary data used for this assessment is HealthENC.org[1], a web-based community health platform developed by Conduent Healthy Communities Institute. The HealthENC dashboard brings non-biased data, local resources, and a wealth of information in one accessible, user-friendly location. The secondary data analysis was conducted using Conduent HCI's data scoring tool, and the results are based on the 154 health and quality of life indicators that were queried on the HealthENC dashboard on July 18, 2018. The data are primarily derived from state and national public data sources. For each indicator on the platform, there exist several comparisons to assess Johnston County's status, including how Johnston County compares to other communities, whether health targets have been met, and the trend of the indicator value over time.

Conduent HCI's data scoring tool systematically summarizes multiple comparisons to rank indicators based on highest need (Figure 2). For each indicator, the Johnston County value is compared to a distribution of North Carolina and U.S. counties, state and national values, Healthy People 2020 targets, Healthy North Carolina 2020 targets, and the trend over the four most recent time periods of measure. Each indicator is then given a score based on the available comparisons. The scores range from 0 to 3, where 0 indicates the best outcome and 3 indicates the worst outcome. Availability of each type of comparison varies by indicator and is dependent upon the data source, comparability with data collected from other communities, and changes in methodology over time. The indicators are grouped into topic areas for a higher-level ranking of community health needs.

Figure 2. Secondary Data Scoring



Please see Appendix B for further details on the secondary data scoring methodology.

[1] Health ENC is an online platform that provides access to health, economic and quality of life data, evidence-based programs, funding opportunities and other resources aimed at improving community health. The platform is publicly available and can be accessed at http://www.healthenc.org/.

Health and Quality of Life Topic Areas

Table 2 shows the health and quality of life topic areas into which indicators are categorized. These topic areas are broadly based on the Healthy People 2020 framework, with each topic area containing multiple indicators. The five topic areas exhibiting the most significant need as evidenced by the secondary data analysis are included for in-depth exploration in the data findings. Four topic areas specific to population subgroups, including Children's Health, Men's Health, Women's Health, and Older Adults & Aging, include indicators spanning a variety of topics. If a particular subgroup receives a high topic score, it is not highlighted independently as one of the top 5 findings, but is discussed within the narrative as it relates to highly impacted populations. Three additional categories (County Health Rankings, Mortality Data, and Wellness & Lifestyle) are not considered for in-depth exploration, since all three are general categories that include indicators spanning a wide variety of topics. Topic areas with fewer than three indicators are considered to have data gaps and do not receive topic scores. These topics are indicated by an asterisk in Table 2.

Table 2. Health and Quality of Life Topic Areas

Access to Health Services	Family Planning*	Prevention & Safety
Cancer	Food Safety*	Public Safety
Children's Health	Heart Disease & Stroke	Respiratory Diseases
County Health Rankings	Immunizations & Infectious Diseases	Social Environment
Diabetes	Maternal, Fetal & Infant Health	Substance Abuse
Disabilities*	Men's Health	Teen & Adolescent Health*
Economy	Mental Health & Mental Disorders	Transportation
Education	Mortality Data	Vision*
Environment	Older Adults & Aging	Wellness & Lifestyle
Environmental & Occupational Health	Other Chronic Diseases	Women's Health
Exercise, Nutrition, & Weight	Oral Health*	

*Topic area has fewer than 3 indicators and is considered a data gap. No topic score is provided.

Health ENC Region Comparison

When available, county-level data are compared to the state of North Carolina, as well as Health ENC Counties. The Health ENC region consists of 33 counties in eastern North Carolina participating in the regional CHNA: Beaufort, Bertie, Bladen, Camden, Carteret, Chowan, Cumberland, Currituck, Dare, Duplin, Edgecombe, Franklin, Gates, Greene, Halifax, Hertford, Hoke, Hyde, Johnston, Lenoir, Martin, Nash, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Sampson, Tyrrell, Washington, Wayne and Wilson. Values for the Health ENC region were calculated by aggregating data from these 33 counties.

Primary Data Collection & Analysis

To expand upon the information gathered from the secondary data, Health ENC Counties collected community input. Primary data used in this assessment consists of focus groups and both an English-language and Spanish-language community survey.

Community Survey

Community input was collected via a 57-question online and paper survey available in both English and Spanish. Survey Monkey was the tool used to distribute and collect responses for the community survey. Completed paper surveys were entered into the Survey Monkey tool. The community survey was distributed across Health ENC's entire survey area from April 18, 2018 – June 30, 2018.

Survey Distribution

The survey was made available online through email (mailchimp), Facebook sponsored posts, the hospital and county/health department websites, distributed electronically to partners, faith-based organizations, community organizations, governmental entities, and collaboratives. Paper copies of the survey were provided at local festivals and to clinics and other groups with limited access to computers or the internet.

Table 3 summarizes the number of survey respondents. A total of 18,917 responses were collected across all 33 counties, with a survey completion rate of 86.5%, resulting in 16,358 complete responses across the entire survey area. A total of 1,363 responses were collected from Johnston County residents, with a survey completion rate of 84.5%, resulting in 1,151 complete responses from Johnston County. The survey analysis included in this CHNA report is based on complete responses.

Table 3. Survey Respondents

	Number of Respondents*		
Service Area	**English Survey**	**Spanish Survey**	**Total**
All Health ENC Counties	15,917	441	16,358
Johnston County	1054	97	1151

*Based on complete responses

Survey participants were asked a range of questions related - but not limited - to: what populations are most negatively affected by poor health outcomes in Johnston County, what their personal health challenges are, and what the most critical health needs are for Johnston County.

Demographics of Survey Respondents

The following charts and graphs illustrate Johnston County demographics of the community survey respondents.

Among Johnston County survey participants, 52.2% of the English survey respondents were over the age of 50, with the highest concentration of respondents (11.9%) grouped into the 45-49 age group. Spanish survey respondents were younger with most under the age of 40 (44.7%). The majority of respondents for both surveys were female (75.7 % English, 83.3% Spanish). 81.1% of the English survey respondents identified as white, 14.3% identified as Black and 91.4% identified as non-Hispanic, while 56.6% of Spanish survey respondents identified as white and 38.2% identified as other race. Spanish survey participants also identified as either Mexican (49.5%) or other Hispanic/Latino (39.8%). English is the primary language spoken at home for English survey participants (95.7%) while Spanish survey participants primarily do not speak English at home (85.9%).

English survey respondents held higher levels of education than Spanish respondents, with the highest share of respondents (28.4%) having a bachelor's degree and the next highest share of respondents (25.8%) having a graduate or professional degree (Figure 3 and Figure 4). Comparatively, Spanish respondents had less than a 9th grade education (46.2%) or had graduated from high school (23.1%).

Figure 3. Education of Community Survey Respondents-English

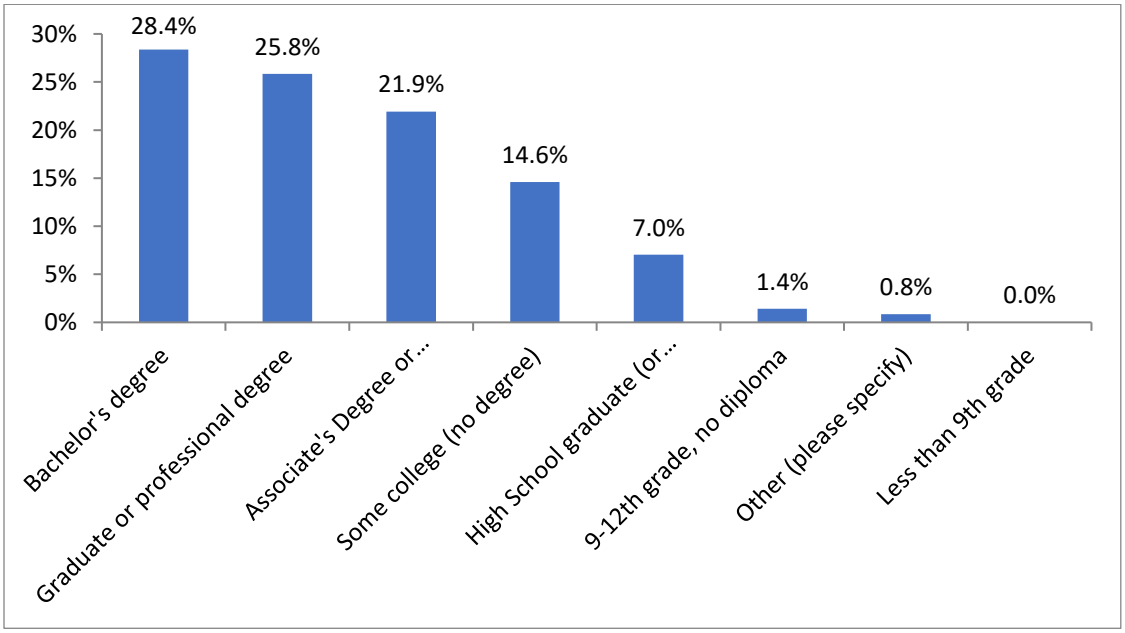
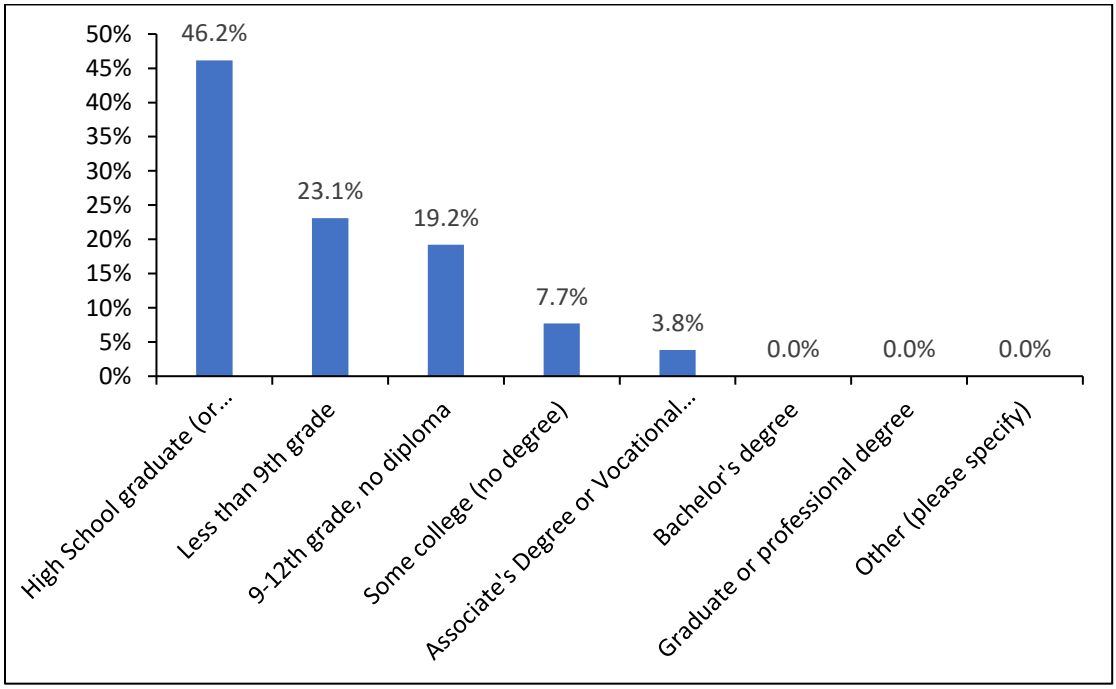


Figure 4. Education of Community Survey Respondents-Spanish



As shown in Figure 5 and Figure 6, approximately three-quarters of English respondents were employed full-time (75.4%). Nearly half of Spanish respondents were employed full time (46.2%) and about half were homemakers. The average household size was 2.8 individuals in the English survey compared to 4.3 individuals in the Spanish survey. The majority of Spanish survey respondents household income before taxes was less than $34,999 (87.2%). English survey respondents household income was greater than $35,000 before taxes, with the highest concentration of respondents household income above $100,000 (18.8%).

Figure 5. Employment Status of Community Survey Respondents-English

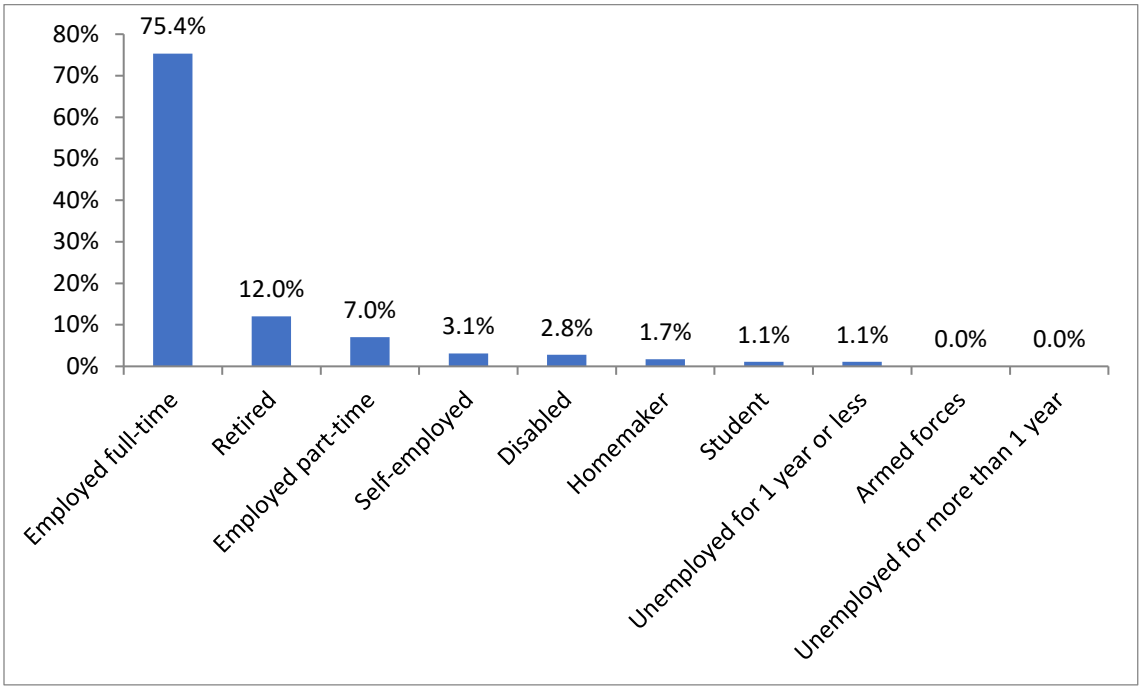


Figure 6. Employment Status of Community Survey Respondents-Spanish

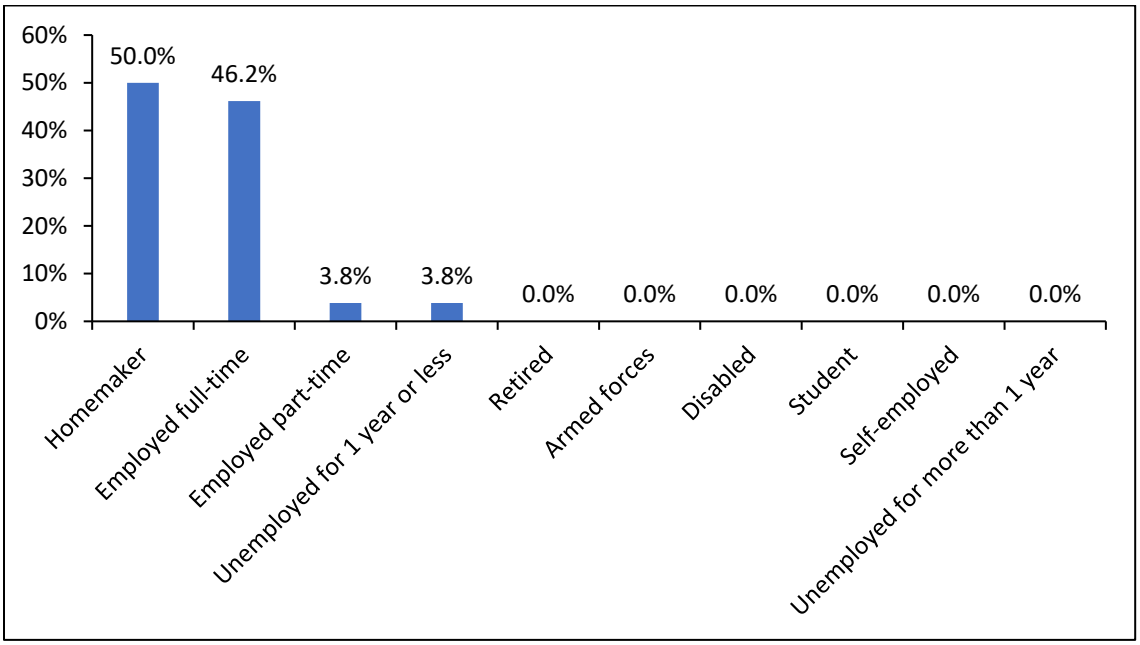


Figure 7 and Figure 8 show the health insurance coverage of community survey respondents. Most English survey respondents have health insurance provided by their employer (73.2%) or Medicare (13.0%) and 1.4% have no health insurance of any kind. 54.2% of Spanish survey respondents reported having no insurance of any kind and 25.0% have insurance through their employer.

Figure 7. Health Care Coverage of Community Survey Respondents-English

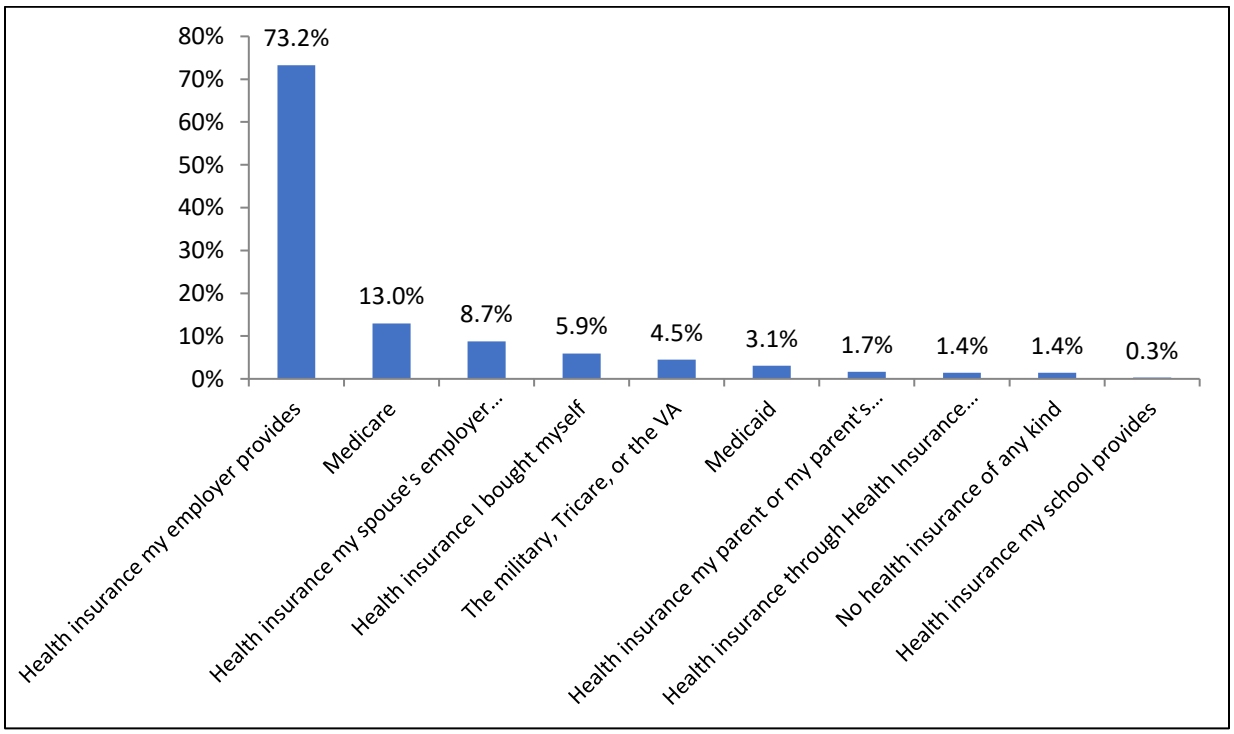
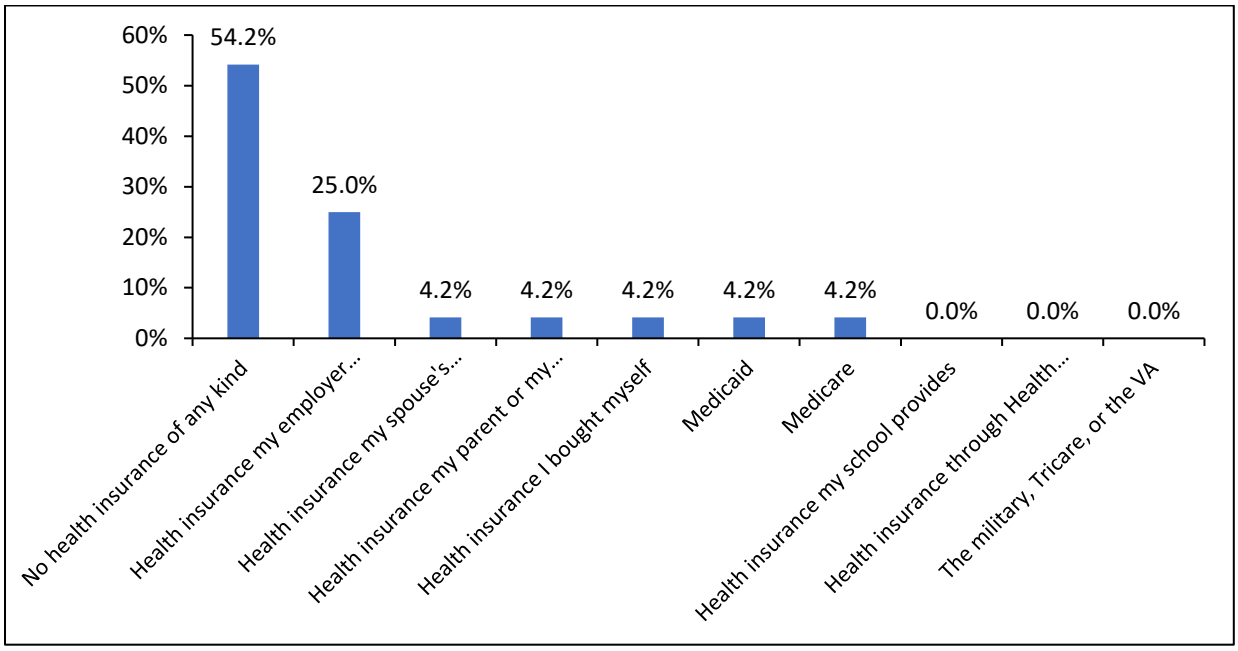


Figure 8. Health Care Coverage of Community Survey Respondents-Spanish



Overall, the community survey participant population deviates greatly across the English and Spanish surveys for education, income, individuals in the home and insurance coverage. The survey was a convenience sample survey, and thus the results may not representative of the community population as a whole.

Key findings from select questions on the community survey are integrated into this report by theme or topic area, with an emphasis on the most significant needs as evidenced by both primary and secondary data. This approach is intended to offer a meaningful understanding of health needs. A summary of full survey results (all 57 questions) is available on HealthENC.org. Full results can be downloaded by county or for the entire Health ENC Region.

Focus Group Discussions

Another form of community input was collected through focus groups. Focus groups are carefully constructed dialogues that invite diverse groups of people to discuss important and pressing issues. Focus groups provide community members an opportunity to engage in productive learning and sharing sessions. Focus group discussions focused on community strengths, opportunities for improvement, existing resources, health needs, and possible solutions for improving the health of Johnston County.

The purpose of the focus groups for Health ENC's 2018 CHNA/CHA was to engage with a broad cross-section of individuals from each county, such as migrant worker groups, healthcare workers, or county employees, to name a few.

Conduent HCI consultants developed a Focus Group Guide and led training webinars for Health ENC members. Topics included facilitation techniques, moderator and note taker roles, as well as tips and expectations for documenting focus group discussions. The list of focus group questions was reviewed and a transcript was provided for documentation purposes.

Four focus group discussions were completed within Johnston County between June 27, 2018 – July 27, 2018 with a total of 68 individuals. Different areas of the county were targeted and previously scheduled meetings and events were utilized to conduct discussions. Participants included community members, health care professionals and government officials. Table 4 shows the date, location, population type, and number of participants for each focus group.

Table 4. List of Focus Group Discussions

Date Conducted	Focus Group Location	Population Type	Number of Participants
6/27/2018	Benson Area Medical Center	Clinical Staff/Physicians	40
7/9/2018	Four Oaks Town Hall	Local government and residents	20
7/16/2018	Selma Parks and Recreation Department	Local government and community members	3
7/27/2018	Johnston County Public Health Dept	Community Members, Professionals	5

Focus group transcripts were coded and analyzed by common theme. The frequency with which a topic area was discussed in the context of needs and concerns or barriers and challenges to achieving health was used to assess the relative importance of the need in the community. Key themes that emerged from the focus group discussions are integrated into this report by topic area, with an emphasis on the most significant needs as evidenced by both primary and secondary data. A deeper analysis of focus group findings is available on HealthENC.org.

Results of the focus group dialogues complement the results from other forms of primary data collected (the community survey) and supports the findings from the secondary data scoring. By synthesizing the discussions that took place at the focus groups in tandem with the responses from the community survey, the primary data collection process for Johnston County is rich with involvement by a cross section of the community.

Data Considerations

Several limitations of the data should be considered when reviewing the findings presented in this report. Although the topics by which data are organized cover a wide range of health and health-related areas, within each topic there is a varying scope and depth of data availability. In some topics there is a robust set of secondary data indicators, but in others there may be a limited number of indicators for which data is collected, or limited subpopulations covered by the indicators.

Data scores represent the relative community health need according to the secondary data that is available for each topic and should not be considered to be a comprehensive result on their own. In addition, these scores reflect what was found in the secondary data for the population as a whole, and do not factor in the health or socioeconomic need that is much greater for some subpopulations. In addition, many of the secondary data indicators included in the findings are collected by survey, and though methods are used to best represent the population at large, these measures are subject to instability—especially among smaller populations. The infant mortality rate indicator was corrected

after the development of the content for this report. The values have been updated here and the impact was determined to be minimal to the analysis overall.

The disparities analysis, used to analyze the secondary data, is also limited by data availability. In some instances, data sources do not provide subpopulation data for some indicators, and for other indicators, values are only available for a select number of race/ethnic groups. Due to these limitations, it is not possible to draw conclusions about subpopulation disparities for all indicators.

The breadth of primary data findings is dependent on several factors. Focus group discussion findings were limited by which community members were invited to and able to attend focus group discussions, as well as language barriers during discussion for individuals whose native language is not English. Because the survey was a convenience sample survey, results are vulnerable to selection bias, making findings less generalizable for the population as whole.

Prioritization

Priority Ranking Process/Methodology

A total of 239 individuals participated in the priority setting exercise. Participants were from various backgrounds, including health care, the faith community, mental health, substance abuse, public health, community members/leaders, senior representatives, and local government officials. The groups included:

Behavioral Health Advisory Council
Community and Senior Services
Day Care Providers
Faith Network
Johnston County Schools Round Table
Johnston Health Cancer Committee
Johnston Health Leadership Team
Johnston Health Patient Family Advisory Meeting
Network on Aging
Opioid Task Force
Public Health Leadership Team
Safety Net
St. Mark's A.M.E. Church
Truancy Intervention Partnership

Participants in the priority setting exercise were asked to prioritize nine focus areas obtained from the initial CHNA survey process. A presentation that summarized the survey data and focus areas was provided prior to the exercise.

A form of the dot method was utilized to rank priorities. Participants were asked to vote for their top three priorities, with their highest priority area ranked number 1. Ranking results were entered into a database and final scorings were tallied. Participants were informed that their rankings would serve as advice for the prioritization committee.
Rankings differed from survey rankings in most areas. Prioritization participants provided higher rankings for transportation and access to health services than the initial survey. Substance

abuse/mental health concerns was a top priority for the survey group and the prioritization participants. The following are the top priorities from the prioritization surveys:

1. Substance Abuse/Mental Health
2. Transportation
3. Access to health services
4. Heart Disease and Stroke
5. Exercise, Nutrition, and Weight
6. Other Chronic Diseases
7. Respiratory Diseases
8. Social Environment
9. Economy

*Of note, there were a number of participants that listed other areas of need. These included: affordable housing, community education and knowledge about available county resources, medication costs, senior day treatment program, access to healthy foods, and cancer and other chronic diseases (diabetes, COPD).

Johnston County Public Health Department and Johnston Health will develop action plans for five priority areas after review of the prioritization surveys, initial surveys, focus groups, secondary data, and evaluation of local resources.

Overview of Johnston County

About Johnston County

Johnston County was established in 1746 and is the 11th largest county in the state. Johnston County Public Health Department is located in Smithfield, the county seat. Johnston Health, the county hospital system, has campuses located in Smithfield and Clayton that provide outpatient, inpatient, and emergency services. Three major highways, I-95, I-40, and highway 70, run through the county which has 11 townships and an estimated population of 196,708 (*US Census Bureau 2017).

The majority of the population is White (68%-not Hispanic or Latino), with 17% Black, 2% two or more races, and 14% Hispanic or Latino. Persons under 18 make up the largest percentage of the population (26%), but the number of those over 65 is increasing (13%). (*US Census Bureau 2017).

Retail, manufacturing, agritourism, healthcare, and educational services are the main industries. The top five employers are Johnston County Schools, Johnston Health, Grifols Therapeutics, Johnston County Government, and Asplundh Tree Expert Company.

Johnston County is one of the fastest growing counties in the state and is projected to have the highest percentage growth over the next ten years. This growth has and is leading to county-wide challenges to human service agencies, access to care, schools, and connecting those in rural areas to the more centralized resources.

Demographic Profile

The demographics of a community significantly impact its health profile. Population growth has an influence on the county's current and future needs. Specific population subgroups, including veterans and different age, gender, race and ethnic groups, may have unique needs and require varied approaches to health improvement efforts. The following section explores the demographic profile of Johnston County, North Carolina.

Population

According to the U.S. Census Bureau's 2016 population estimates, Johnston County has a population of 191,450 (Figure 9). The population of Johnston County has increased from 2013 to 2016.

Figure 9. Total Population (U.S. Census Bureau)

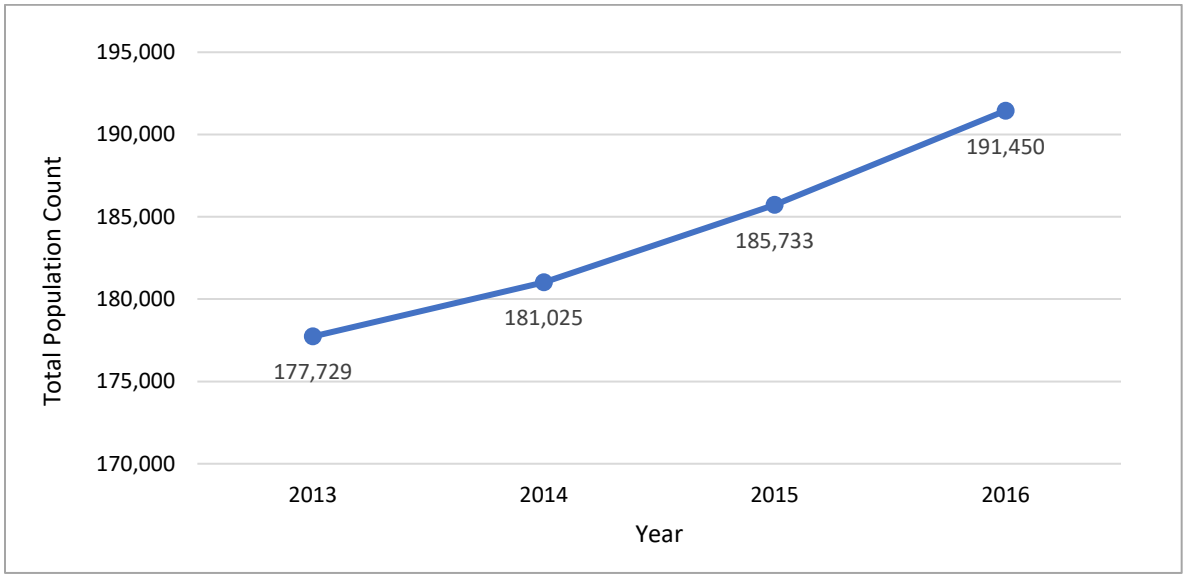
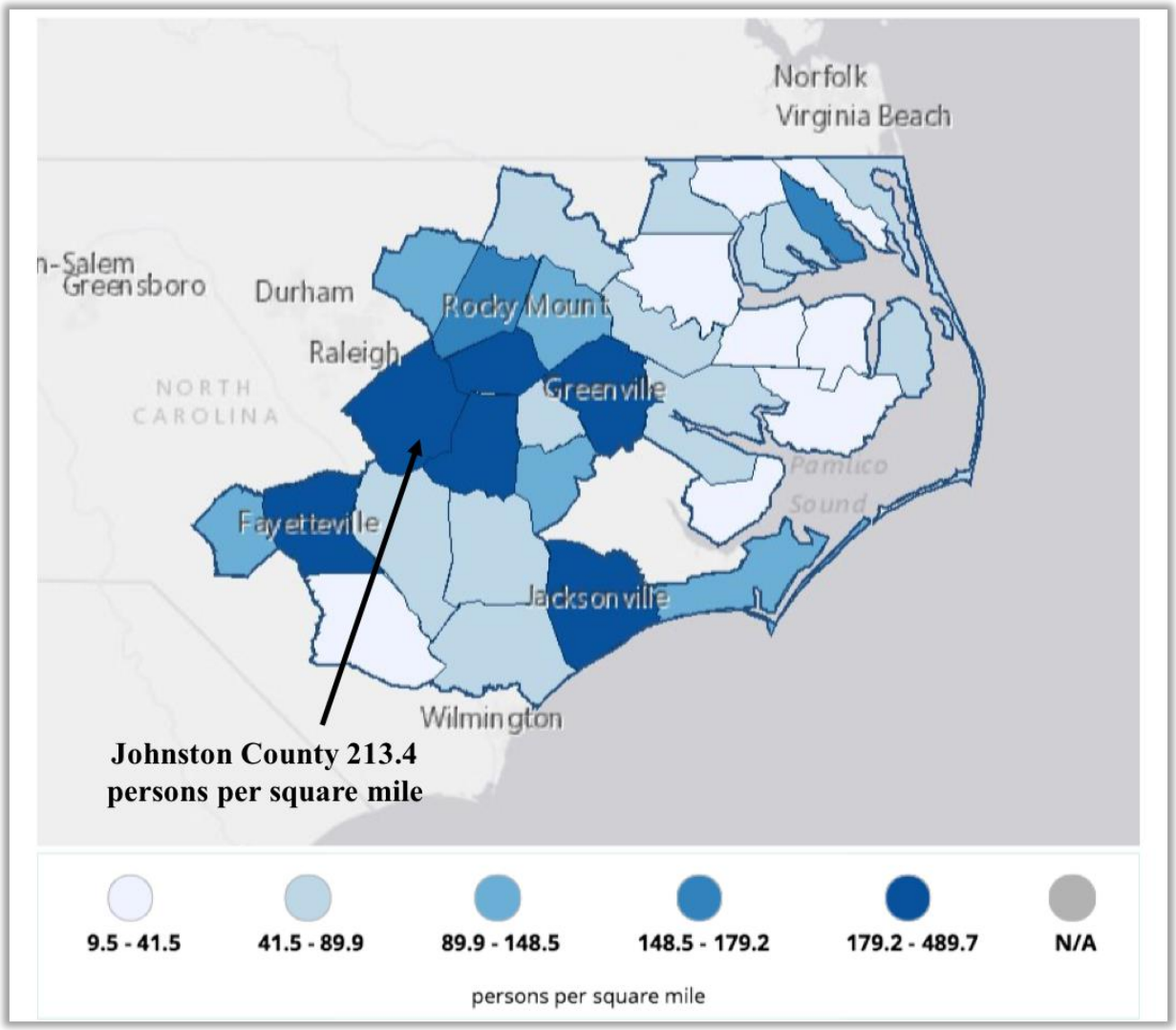


Figure 10 shows the population density of Johnston County compared to other counties in the Health ENC region. Johnston County has a population density of 213.4 persons per square mile and is more densely populated than most counties in the Health ENC region.

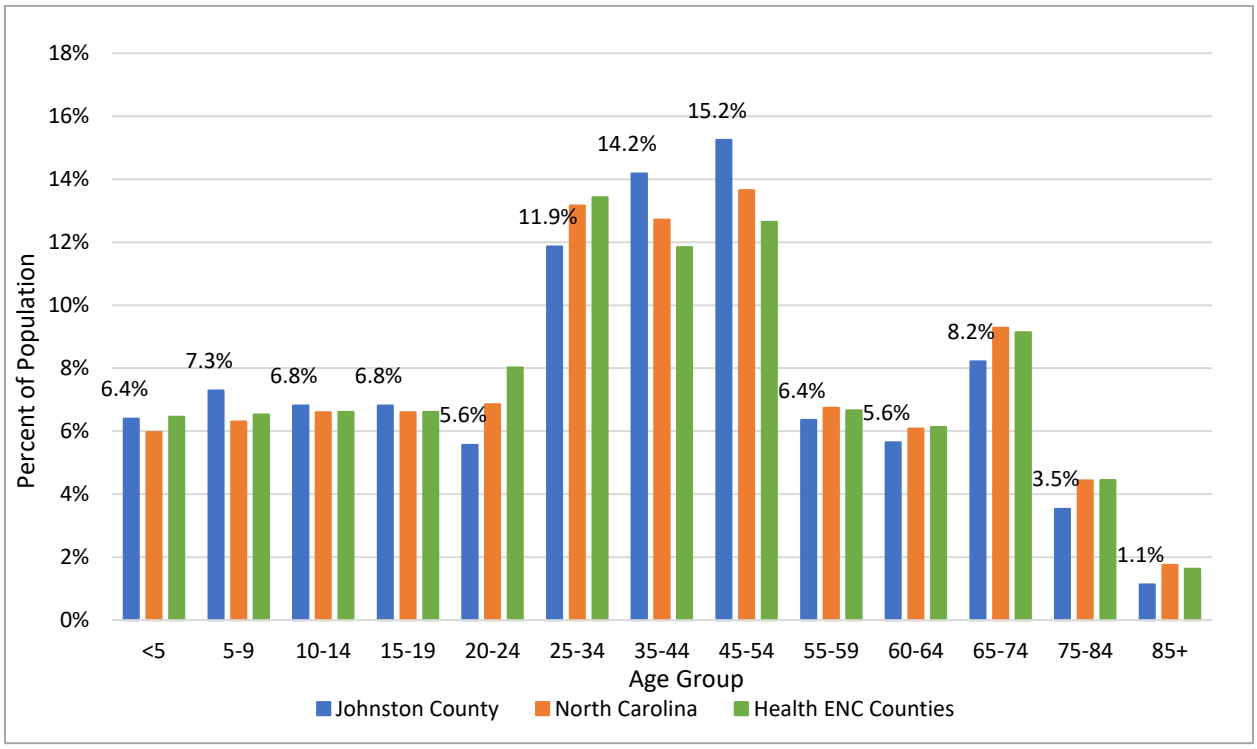
Figure 10. Population Density of Health ENC Counties (U.S. Census Bureau, 2010)



Age and Gender

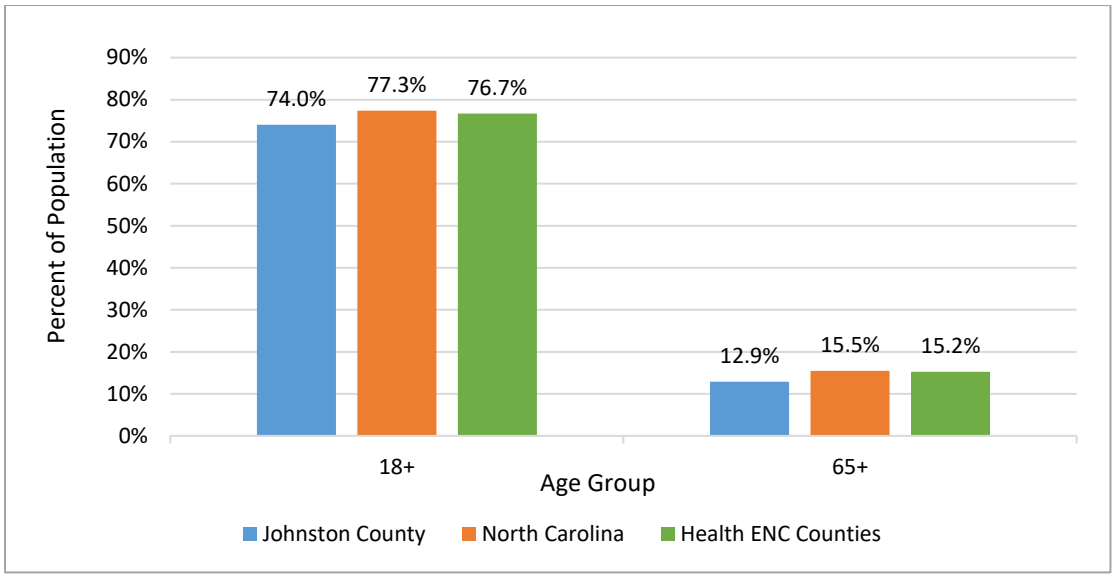
Overall, Johnston County residents are slightly younger than residents of North Carolina and the Health ENC region. Figure 11 shows the Johnston County population by age group. The 45-54 age group contains the highest percent of the population at 15.2%, while the 35-44 age group contains the next highest percent of the population at 14.2%.

Figure 11. Population by Age (U.S. Census Bureau, 2016)



People 65 years and older comprise 12.9% of the Johnston County population, compared to 15.5% in North Carolina and 15.2% in the Health ENC counties (Figure 12).

Figure 12. Population 18+ and 65+ (U.S. Census Bureau, 2016)



Males comprise 49.0% of the population, whereas females comprise 51.0% of the population (Table 5). The median age for males is 37.0 years, whereas the median age for females is 39.3 years. Both are slightly younger than the North Carolina median age (37.2 years for males and 40.1 years for females).

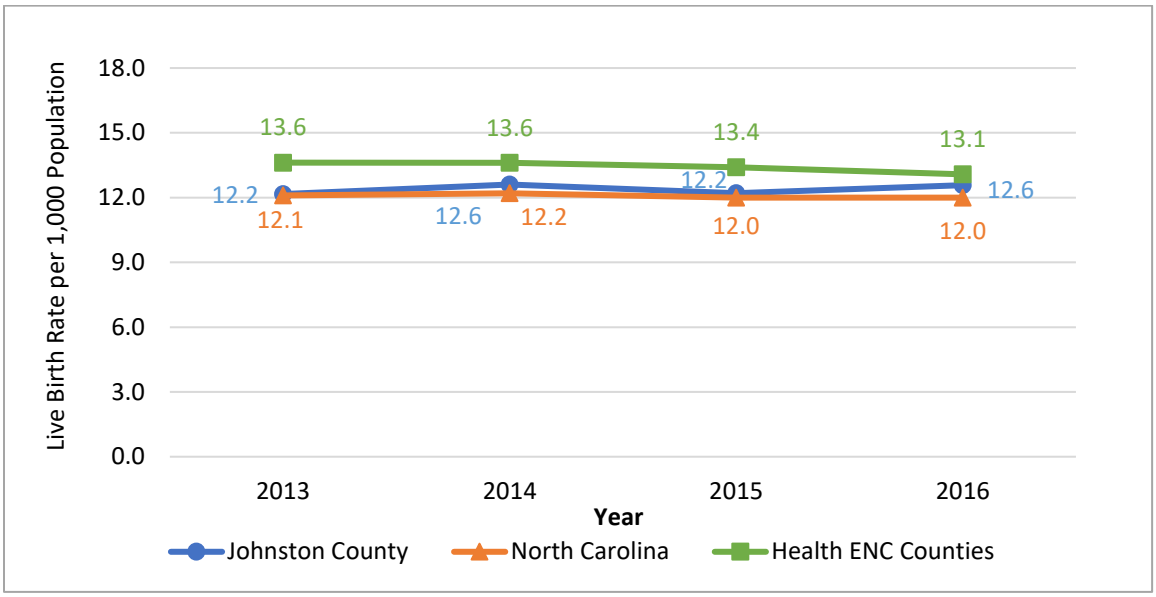
Table 5. Population by Gender and Age (U.S. Census Bureau, 2016)

	Percent of Total Population		Percent of Male Population		Percent of Female Population		Median Age (Years)	
	Male	Female	18+	65+	18+	65+	Male	Female
Johnston County	49.0%	51.0%	72.9%	11.4%	75.2%	14.3%	37.0	39.3
North Carolina	48.6%	51.4%	76.3%	13.9%	78.4%	17.0%	37.2	40.1
Health ENC Counties	49.2%	50.8%	75.8%	13.5%	77.5%	16.9%	N/A	N/A

Birth Rate

Birth rates are important measures of population health. The birth rate is usually the dominant factor in determining the rate of population growth; however, population growth is also driven by the age structure of the population (e.g., deaths), immigration and emigration. Figure 13 illustrates that the birth rate in Johnston County (12.6 live births per 1,000 population in 2016) is slightly higher than the birth rate in North Carolina (12.0) and slightly lower than the birth rate in Health ENC counties (13.1).

Figure 13. Birth Rate (North Carolina State Center for Health Statistics)



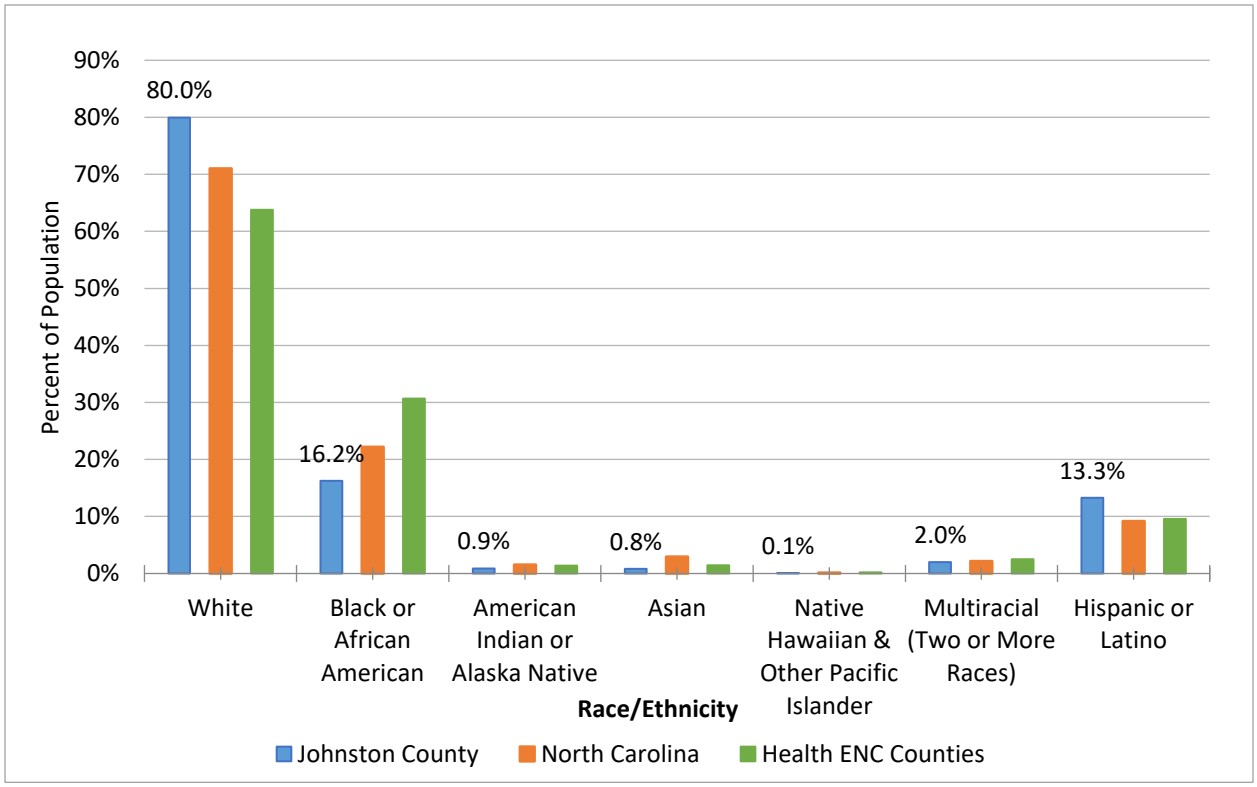
Race/Ethnicity

The race and ethnicity composition of a population is important in planning for future community needs, particularly for schools, businesses, community centers, health care and child care. Race and ethnicity data are also useful for identifying and understanding disparities in housing, employment, income and poverty.

Figure 14 shows the racial and ethnic distribution of Johnston County compared to North Carolina and Health ENC counties. The first six categories (White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian & Other Pacific Islander and Multiracial) are racial groups and may include persons that identify as Hispanic or Latino. The seventh category (Hispanic or Latino) is an ethnic group and may include individuals that identify as any race.

The proportion of residents that identify as White is larger in Johnston County (80.0%) as compared to North Carolina (71.0%) and Health ENC counties (63.8%). Johnston County has a smaller share of residents that identify as Black or African American (16.2%%) when compared to North Carolina (22.2%) and Health ENC counties (30.7%). The Hispanic or Latino population comprises 13.3% of Johnston County, which is a larger proportion than the Hispanic or Latino population in North Carolina (9.2%) and Health ENC counties (9.6%).

Figure 14. Population by Race/Ethnicity (U.S. Census Bureau, 2016)



Tribal Distribution of Population

The U.S. Census Bureau collects population estimates for various American Indian and Alaska Native (AIAN) tribes. While population estimates of tribal data are not available at the county level, Table 6 shows the population estimates of eight tribal areas throughout the state of North Carolina.

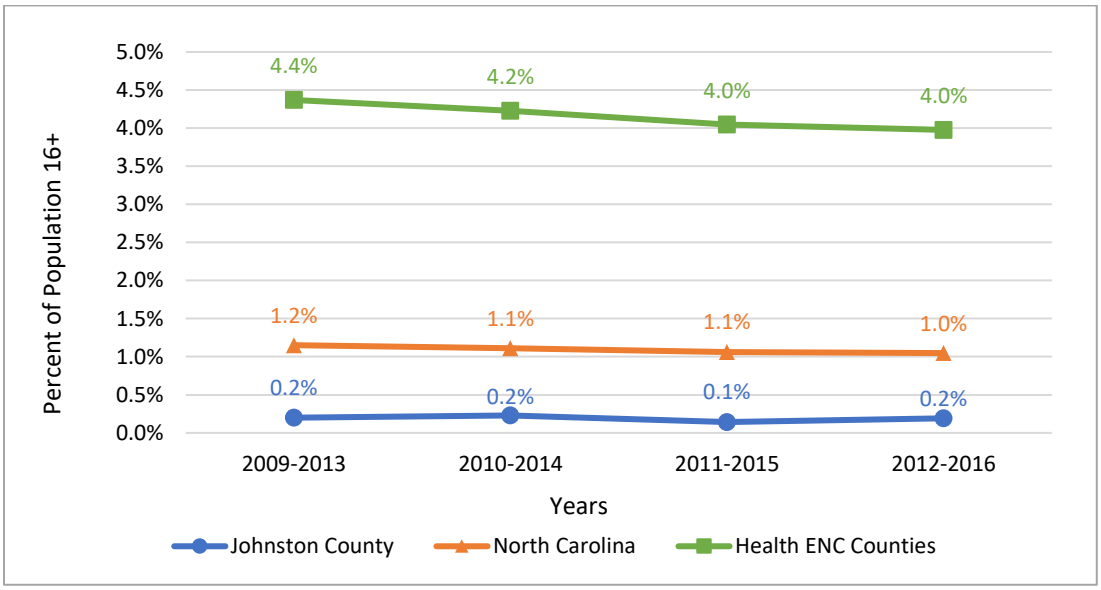
Table 6. Named Tribes in North Carolina (American Community Survey, 2012-2016)

State Designated Tribal Statistical Area (SDTSA)	Total Population
Coharie SDTSA	62,160
Eastern Cherokee Reservation	9,613
Haliwa-Saponi SDTSA	8,700
Lumbee SDTSA	502,113
Meherrin SDTSA	7,782
Occaneechi-Saponi SDTSA	8,938
Sappony SDTSA	2,614
Waccamaw Siouan SDTSA	2,283

Military Population

Figure 15 shows the percent of the population 16 years of age and older in the military (armed forces). In 2012-2016, Johnston County has a smaller share of residents in the military (0.2%) compared to North Carolina (1.0%) and counties in the Health ENC region (4.0%). Figure 15 also shows the trend analysis of the military population over the four most recent measurement periods. Across four time periods, the percent of the population in the military for Johnston County is lower than in North Carolina and the Health ENC region.

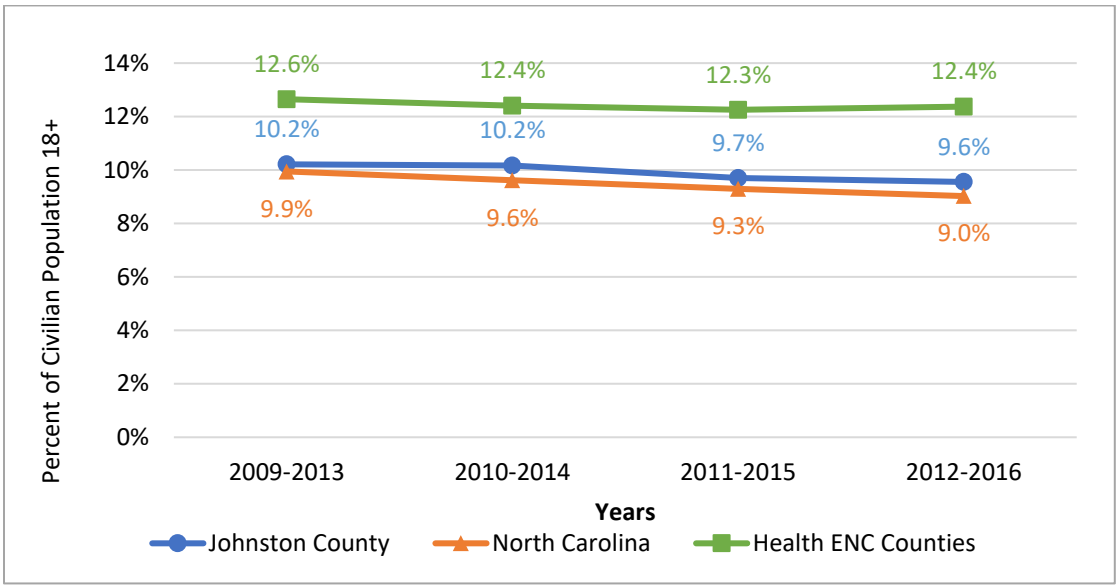
Figure 15. Population in Military / Armed Forces (American Community Survey)



Veteran Population

The veteran population is given as a percent of the civilian population aged 18 years and older and this data is used for policy analyses, to develop programs, and to create budgets for veteran programs and facilities. Johnston County has a veteran population of 9.6% in 2012-2016, compared to 9.0% for North Carolina and 12.4% for Health ENC counties (Figure 16). The veteran population of Johnston County, North Carolina, and the Health ENC region is decreasing slightly across four time periods from 2009-2013 to 2012-2016.

Figure 16. Veteran Population (American Community Survey, 2012-2016)



Socioeconomic Profile

Social and economic factors are well known to be strong determinants of health outcomes – those with a low socioeconomic status are more likely to suffer from chronic conditions such as diabetes, obesity and cancer. Community health improvement efforts must determine which subpopulations are most in need in order to effectively focus services and interventions.

NC Department of Commerce Tier Designation

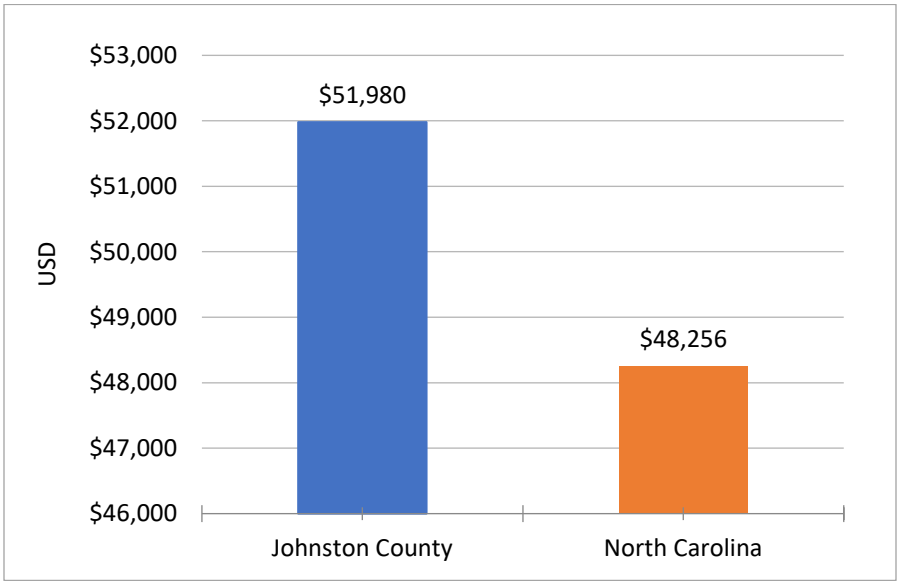
The North Carolina Department of Commerce annually ranks the state's 100 counties based on economic well-being and assigns each a Tier designation. The 40 most distressed counties are designated as Tier 1, the next 40 as Tier 2 and the 20 least distressed as Tier 3. Johnston County has been assigned a Tier 3 designation for 2018.

Income

Median household income reflects the relative affluence and prosperity of an area. Areas with higher median household incomes are likely to have a greater share of educated residents and lower unemployment rates.

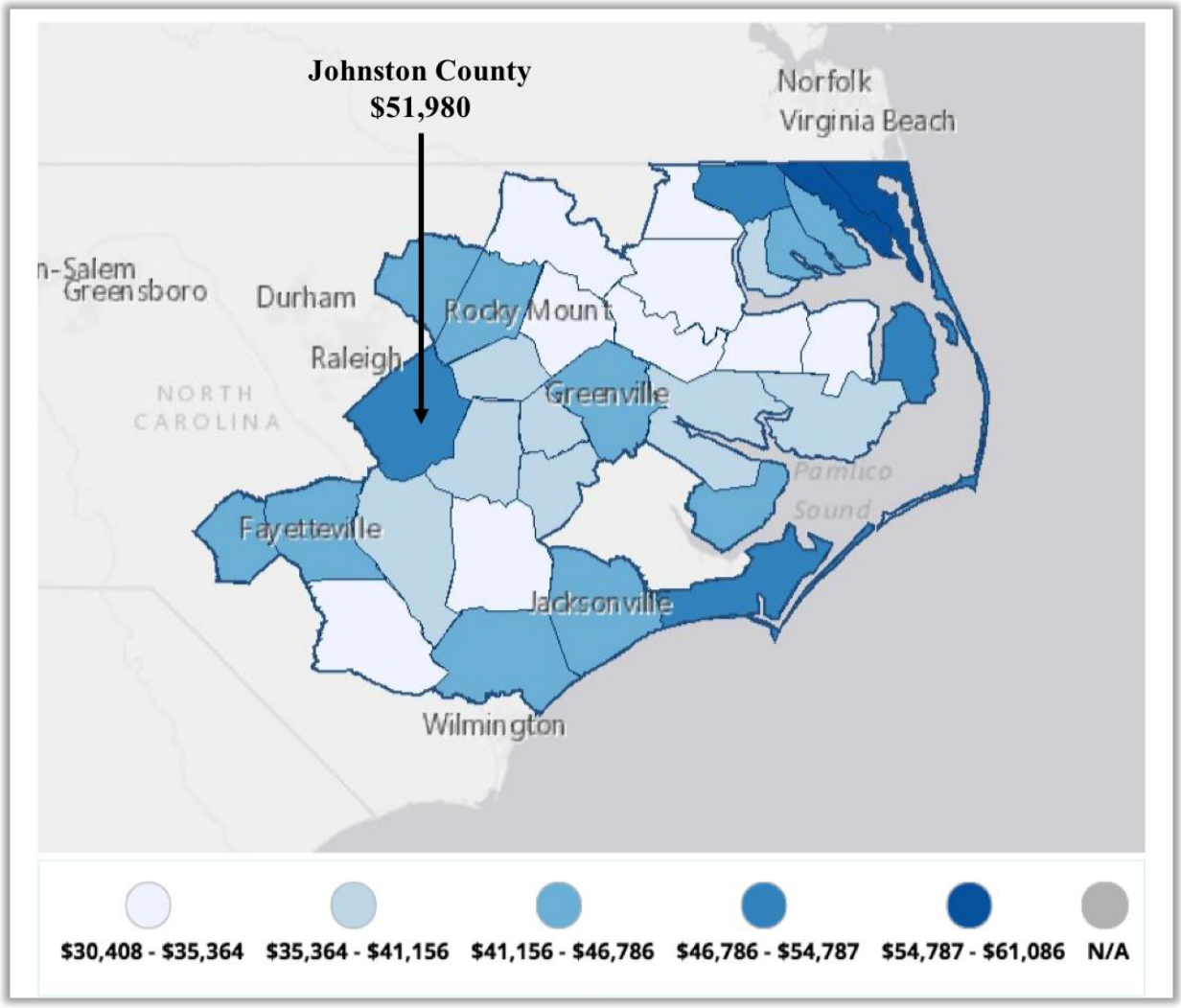
Figure 17 shows the median household income in Johnston County ($51,980), which is higher than the median household income in North Carolina ($48,256).

Figure 17. Median Household Income (American Community Survey, 2012-2016)



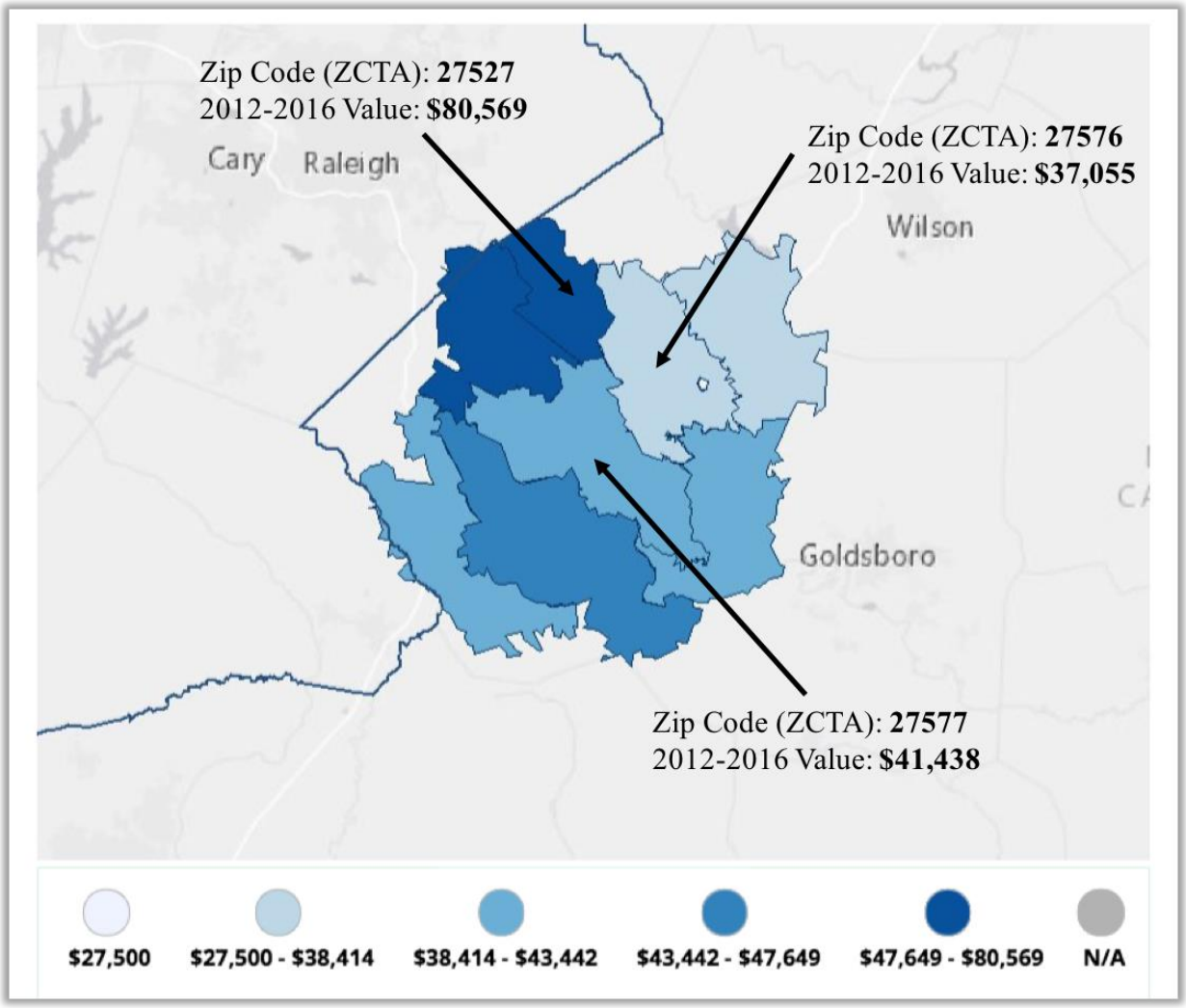
Compared to counties in the Health ENC region, Johnston County has a relatively high median household income. Dare, Camden and Currituck are the only counties with a higher median household income than Johnston County; the remaining 29 counties in the Health ENC region have a lower median household income (Figure 18).

Figure 18. Median Household Income of Health ENC Counties (American Community Survey, 2012-2016)



Within Johnston County, the median household income varies. For example, zip code 27576 has a median household income of $37,055, while zip code 27527 has a median household income of $80,569 (Figure 19).

Figure 19. Median Household Income by Zip Code (American Community Survey, 2012-2016)

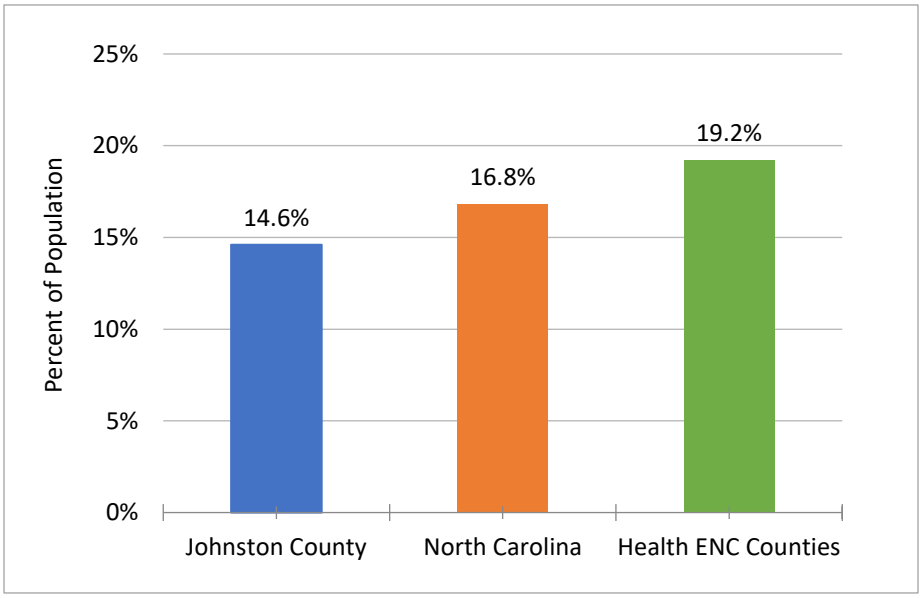


Poverty

Federal poverty thresholds are set every year by the Census Bureau and vary by size of family and ages of family members. A high poverty rate is both a cause and a consequence of poor economic conditions. Children in poverty are more likely to have physical health problems, behavioral problems and emotional problems. Seniors who live in poverty are an especially vulnerable group due to increased physical limitations, medical needs, and social isolation. Persons with a disability are more likely to live in poverty compared to the rest of the population. Without adequate income, individuals with disabilities may not be able to afford necessary expenses, such as rent or mortgage, utility bills, medical and dental care, and food.

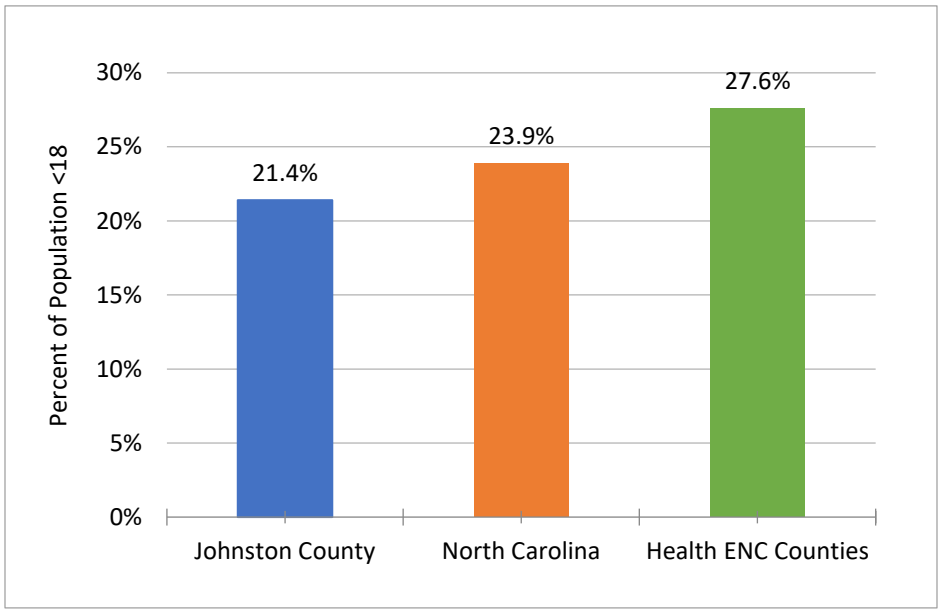
As seen in Figure 20, 14.6% percent of the population in Johnston County lives below the poverty level, which is lower than the rate for North Carolina (16.8% of the population) and the Health ENC region (19.2%).

Figure 20. People Living Below Poverty Level (American Community Survey, 2012-2016)



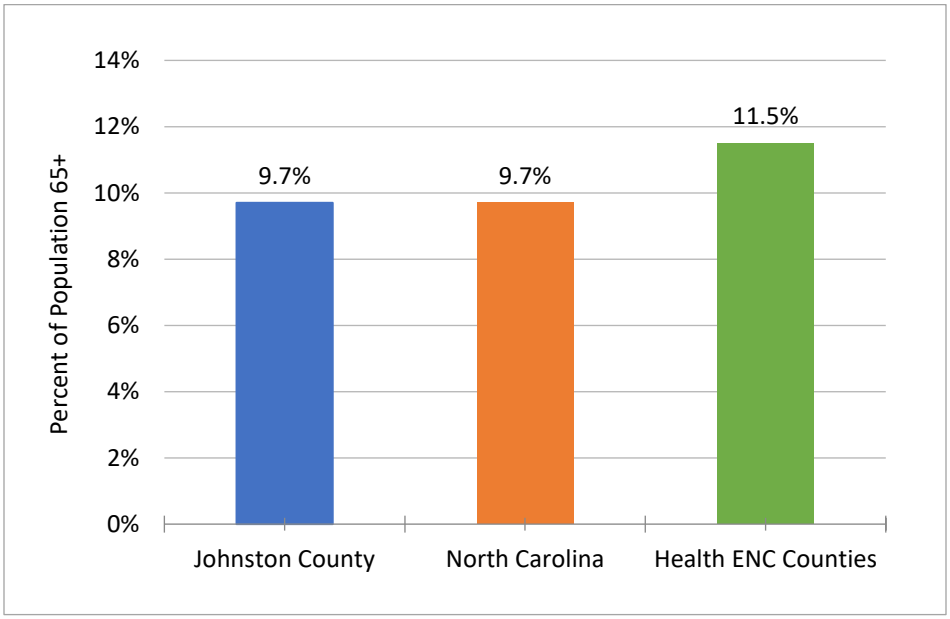
As shown in Figure 21, the rate of children living below the poverty level is also lower for Johnston County (21.4%) when compared to North Carolina (23.9%) and Health ENC counties (27.6%).

Figure 21. Children Living Below Poverty Level (American Community Survey, 2012-2016)



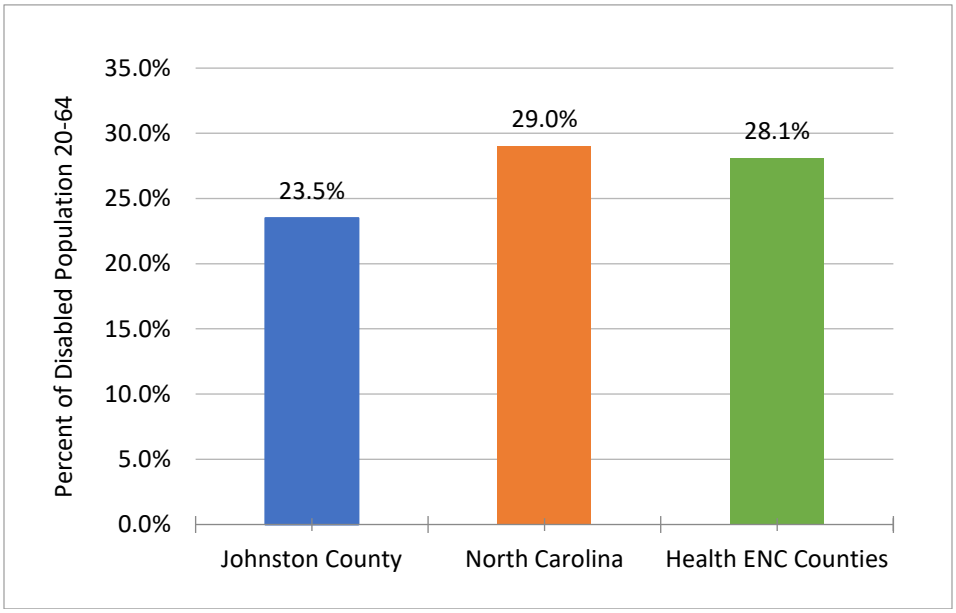
As shown in Figure 22, the rate of older adults living below the poverty level is the same in Johnston County (9.7%) as in North Carolina (9.7%), but lower than the rate in the Health ENC region (11.5%).

Figure 22. People 65+ Living Below Poverty Level (American Community Survey, 2012-2016)



As shown in Figure 23, the percent of disabled people living in poverty in Johnston County (23.5%) is lower than the rate in North Carolina (29.0%) and Health ENC counties (28.1%).

Figure 23. Persons with Disability Living in Poverty (American Community Survey, 2012-2016)

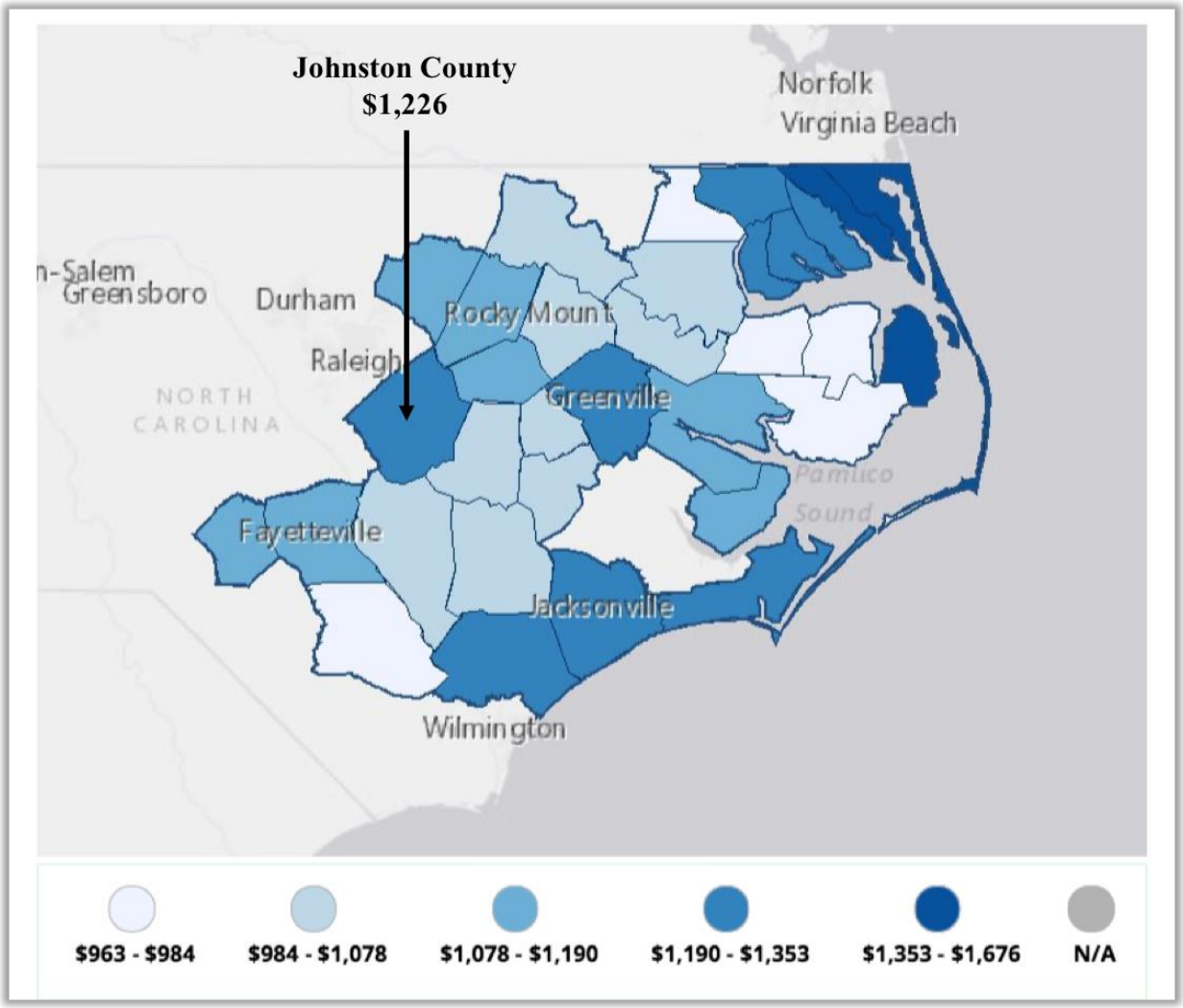


Housing

The average household size in Johnston County is 2.9 people per household, which is higher than the North Carolina value of 2.5 people per household.

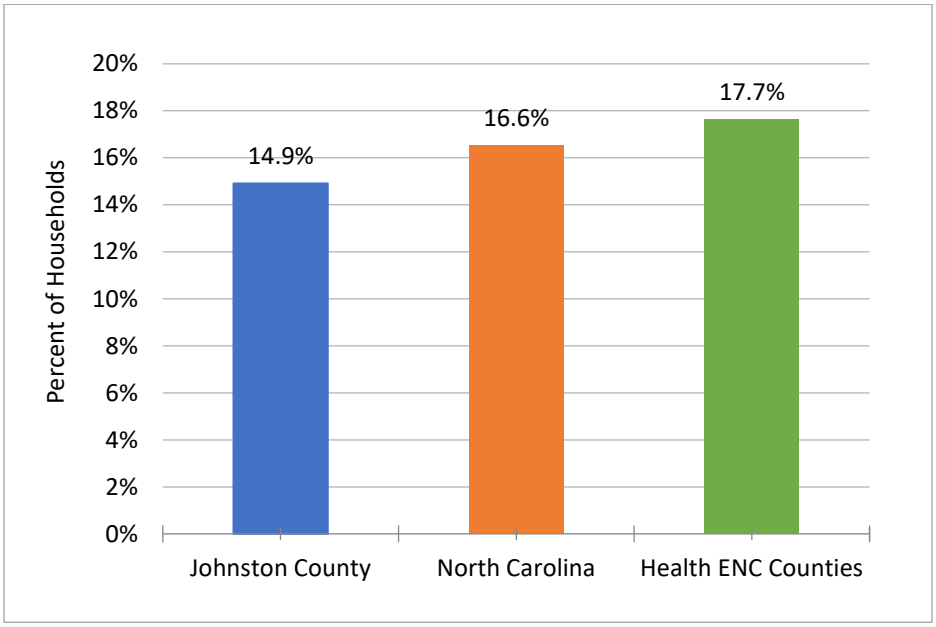
High costs of homeownership with a mortgage can strain both homeowners and the local housing market. Figure 24 shows mortgaged owners median monthly household costs in the Health ENC region. In Johnston County, the median housing costs for homeowners with a mortgage is $1,226. This is similar to the North Carolina value of $1,243 and similar to other counties in the Health ENC region.

Figure 24. Mortgaged Owners Median Monthly Household Costs, Health ENC Counties (American Community Survey 2012-2016)



Safe and affordable housing is an essential component of healthy communities, and the effects of housing problems are widespread. Figure 25 shows the percent of households with at least one of the following problems: overcrowding, high housing costs, lack of kitchen, or lack of plumbing facilities. Countywide, 14.9% of households in Johnston County have severe housing problems, compared to 16.6% in North Carolina and 17.7% in Health ENC counties.

Figure 25. Severe Housing Problems (County Health Rankings, 2010-2014)

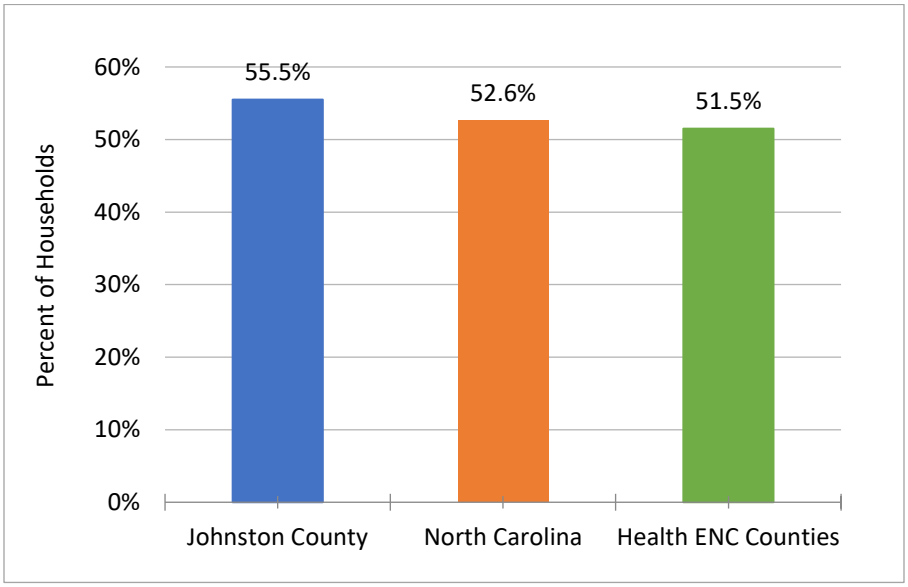


Food Insecurity

The Supplemental Nutrition Assistance Program (SNAP) is a federal assistance program that provides low-income families with electronic benefit transfers (EBTs) that can be used to purchase food. The goal of the program is to increase food security and reduce hunger by increasing access to nutritious food.

Figure 26 shows the percent of households with children that participate in SNAP. The rate for Johnston County, 55.5%, is higher than the state value of 52.6% and the Health ENC region value of 51.5%.

Figure 26. Households with Children Receiving SNAP (American Community Survey, 2012-2016)



Employment

Table 7. Top 25 Employers

Top 25 Employers – Johnston County 2017			
Rank	**Company Name**	**Industry**	**Employment Range**
1	Johnston County Public Schools	Education & Health Services	1000+
2	Johnston Health	Education & Health Services	1000+
3	Grifols Therapeutics Inc	Manufacturing	1000+
4	County Of Johnston	Public Administration	1000+
5	Asplundh Tree Expert Co Inc Talx	Professional & Business Services	1000+
6	Novo Nordisk Pharmaceutical	Manufacturing	1000+
7	Food Lion	Trade, Transportation, & Utilities	500-999
8	Wal-Mart Associates Inc.	Trade, Transportation, & Utilities	500-999
9	Johnston Technical Institute	Education & Health Services	500-999
10	Precionaire	Manufacturing	500-999
11	Caterpillar Inc	Manufacturing	500-999
12	Nike Retail Service	Trade, Transportation, & Utilities	250-499
13	Sysco Raleigh Llc	Trade, Transportation, & Utilities	250-499
14	Town Of Clayton	Public Administration	250-499
15	Lowes Home Centers Inc	Trade, Transportation, & Utilities	250-499
16	Mcdonalds	Leisure & Hospitality	250-499
18	Airflow Products Company Inc	Manufacturing	250-499
18	Bojangles	Leisure & Hospitality	250-499
20	3c Packaging Inc	Manufacturing	250-499
20	Principle Long Term Care Inc	Education & Health Services	250-499
21	Executive Personnel Group Llc	Professional & Business Services	250-499
22	Villari Bros Foods Llc	Manufacturing	100-249
23	Dept Of Public Safety	Public Administration	100-249
24	Town Of Smithfield	Public Administration	100-249
25	U S Postal Service	Trade, Transportation, & Utilities	100-249

Source: https://www.nccommerce.com/data-tools-reports/business-information-reports#top-employers-in-north-carolina

SocioNeeds Index

Conduent Healthy Communities Institute developed the SocioNeeds Index® to easily compare multiple socioeconomic factors across geographies. This index incorporates estimates for six different social and economic determinants of health – income, poverty, unemployment, occupation, educational attainment, and linguistic barriers – that are associated with poor health outcomes including preventable hospitalizations and premature death.

Zip codes within Johnston County are assigned an index value from 0 (low need) to 100 (high need), based on how those zip codes compare to others in the U.S. Within Johnston County, the zip codes are then ranked from 1 (low need) to 5 (high need) to identify the relative level of need. Zip codes with populations under 300 persons are excluded. Zip code 27576, with an index value of 85.8, has the highest level of socioeconomic need within Johnston County. This is illustrated in Figure 27. Index values and the relative ranking of each zip code within Johnston County are provided in Table 8.

Figure 27. SocioNeeds Index® (Conduent Healthy Communities Institute, 2018)

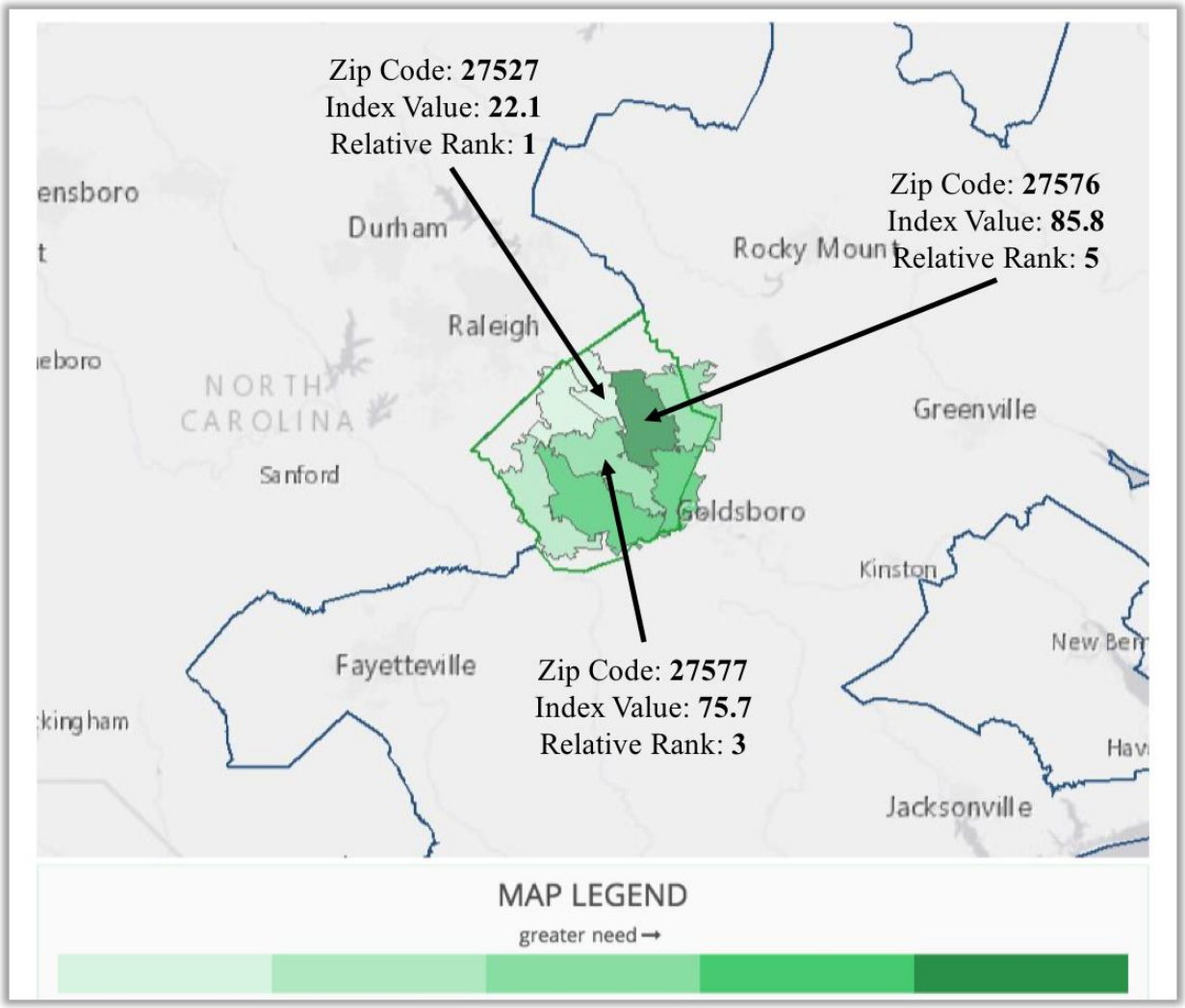


Table 8. SocioNeeds Index® (Conduent Healthy Communities Institute, 2018)

Zip Code	Index Value	Relative Rank
27576	85.8	5
27569	82.1	4
27524	79.2	4
27577	75.7	3
27542	73.2	3
27504	65.1	2
27520	28.3	1
27527	22.1	1

Source: http://www.healthenc.org/socioneeds

Understanding where there are communities with high socioeconomic need is critical to forming prevention and outreach activities.

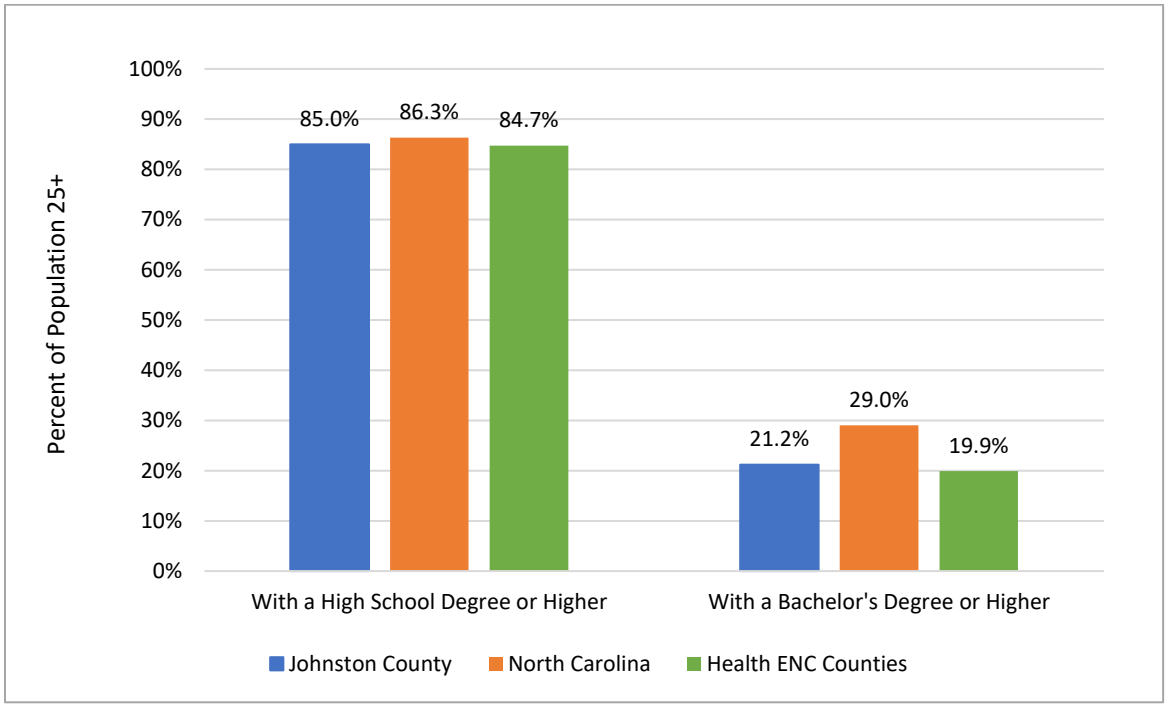
Educational Profile

Educational Attainment

Graduating from high school is an important personal achievement and is essential for an individual's social and economic advancement. Graduation rates can also be an important indicator of the performance of an educational system. Having a bachelor's degree opens up career opportunities in a variety of fields and is often a prerequisite for higher-paying jobs.

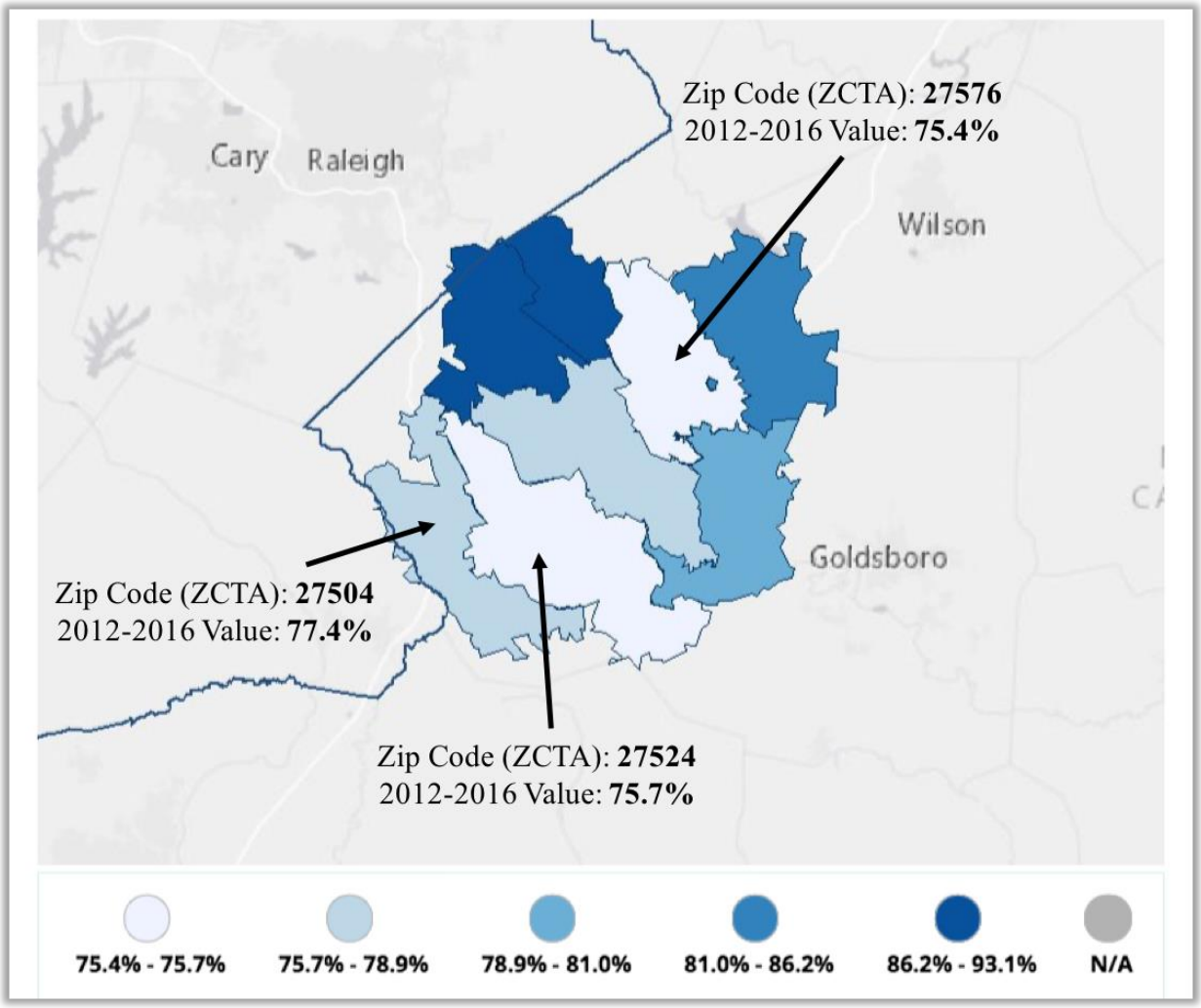
Countywide, the percent of residents 25 or older with a high school degree or higher (85.0%) is slightly lower than the state value (86.3%) and slightly higher than the regional value (84.7%) (Figure 28). Higher educational attainment in Johnston County is lower than the state value and slightly higher than the regional value. While 29.0% of residents 25 and older have a bachelor's degree or higher in North Carolina, the rate drops to 21.2% in Johnston County and 19.9% in Health ENC counties (Figure 28).

Figure 28. People 25+ with a High School Degree or Higher and Bachelor's Degree or Higher (American Community Survey, 2012-2016)



Countywide, the high school degree attainment rate varies, with zip code 27576 having the lowest high school graduation rate of 75.4% (Figure 29).

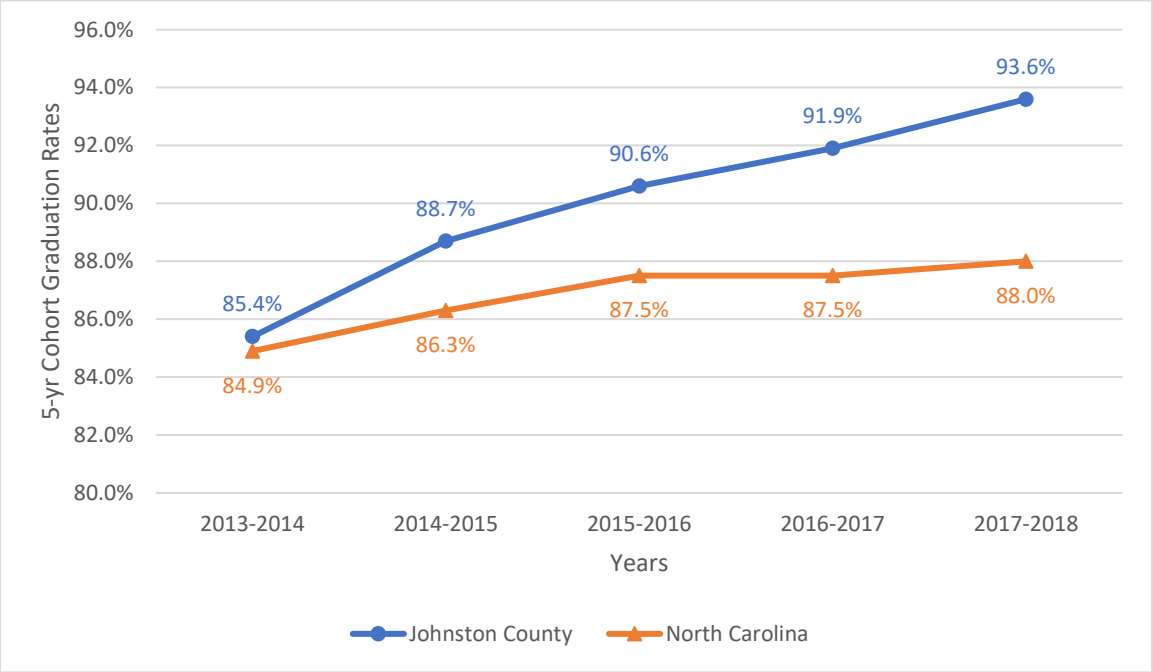
Figure 29. People 25+ with a High School Degree or Higher by Zip Code (American Community Survey, 2012-2016)



High School Graduation Rates

Johnston County's high school graduation rate, given as a percent of high school students in Figure 30, is 93.6% in 2017-2018, which is higher than the rate in North Carolina (88.0%). Further, Johnston County's high school graduation rate has increased over the past five measurement periods.

Figure 30. 5-yr Cohort High School Graduation Rates

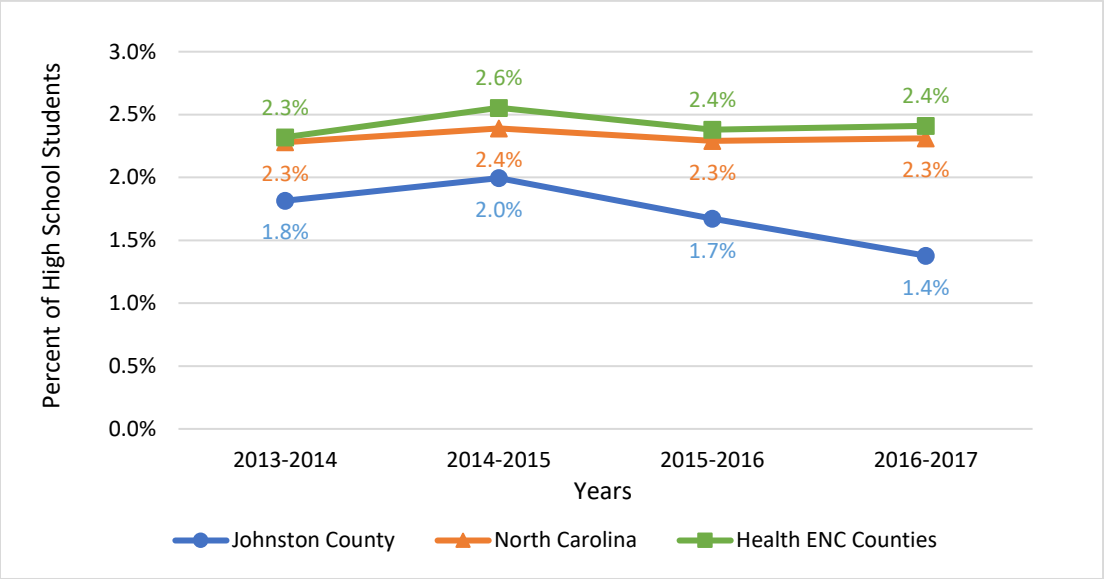


High School Dropouts

High school dropouts earn less income than high school and college graduates, and are more likely to be unemployed. High school dropouts are generally less healthy and require more medical care. Further, high school dropout rates are linked with heightened criminal activity and incarceration rates, influencing a community's economic, social, and civic health.

Johnston County's high school dropout rate, given as a percent of high school students in Figure 31, is 1.4% in 2016-2017, which is lower than the rate in North Carolina (2.3%) and the Health ENC region (2.4%). Further, Johnston County's high school dropout rate has decreased over the past four measurement periods.

Figure 31. High School Dropout Rate (North Carolina Department of Public Instruction)

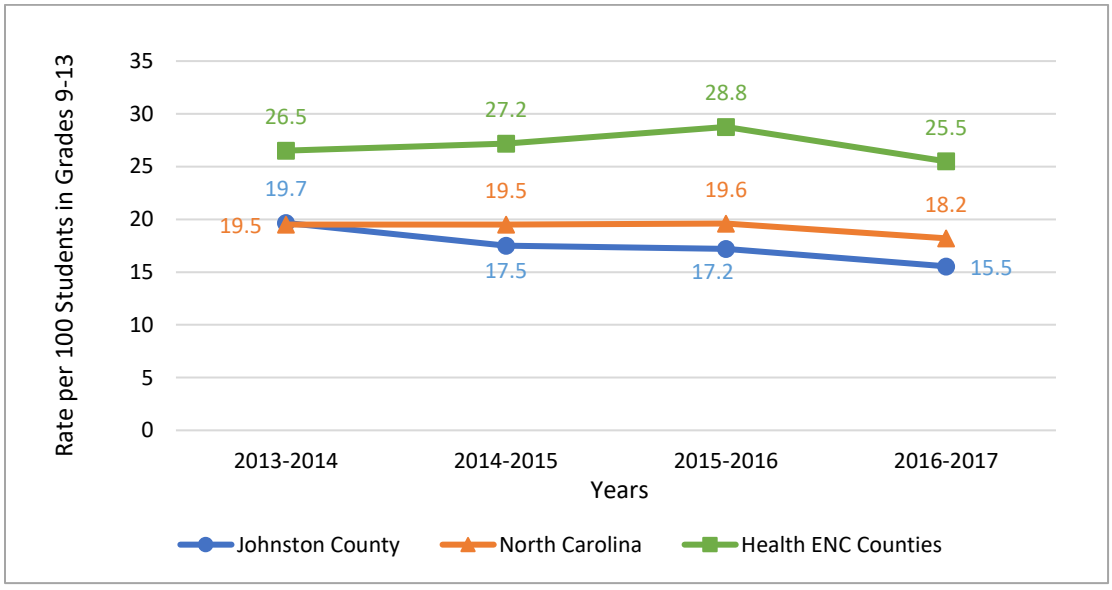


High School Suspension Rate

High school suspension is a form of discipline in which a student is temporarily removed from a classroom and/or school due to a violation of school conduct or code. Higher rates of suspension can be related to high rates of antisocial or delinquent behaviors, which may further contribute to potential future involvement in the juvenile justice system. Additionally, schools with higher suspension rates have higher rates of law or board of education violations and generally spend more money per student.

Johnston County's rate of high school suspension (15.5 suspensions per 100 students) is lower than North Carolina's rate (18.2) and the rate of Health ENC counties (25.5) in 2016-2017. As shown in Figure 32, the suspension rate in Johnston County has decreased over the past four measurement periods.

Figure 32. High School Suspension Rate (North Carolina Department of Public Instruction)



Source: http://www.ncpublicschools.org/accountability/reporting/cohortgradrate

Educational System

The Johnston County education system is comprised of public, charter, and private schools and a community college.

Figure 33. Allocation of Johnston County Public Schools

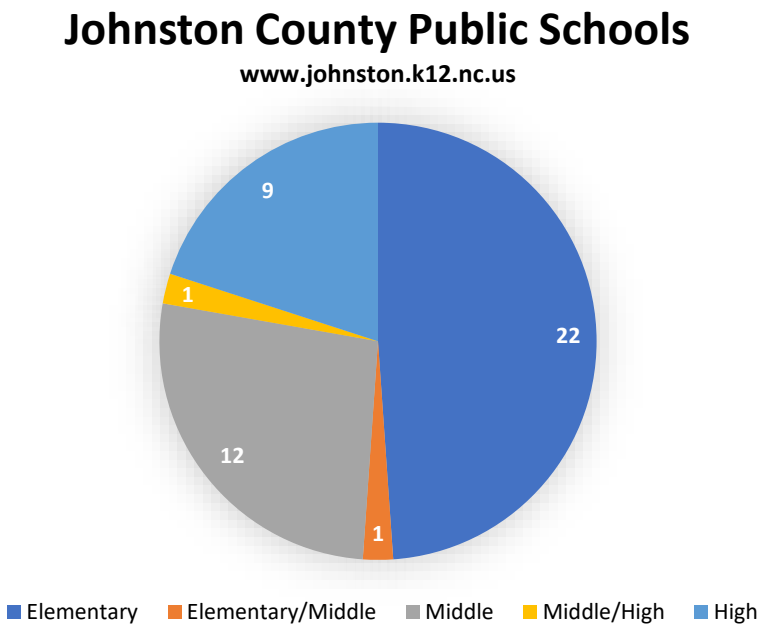


Table 9. List of Charter Schools, Private Schools, and Community Colleges

Charter Schools

School	Grades	Webpage
Johnston Charter Academy *Clayton, NC*	K-8	www.nhaschools.com/schools/Johnston-Charter-Academy
Neuse Charter School *Smithfield, NC*	K-12	http://www.neusecharterschool.org/

Private Schools

School	Grades	Webpage
Academy of Hope *Clayton, NC*	7-12	www.houseofhopeofnc.com
Life Spring *Clayton, NC*	K-12	www.lifespringacademy.com
Southside Christian School *Clayton, NC*	K-12	www.scswarriors.com
Star Christian Academy *Smithfield, NC*	K-12	www.starchristianacademy.net

Community College

School	Webpage
Johnston Community College *Smithfield, NC*	http://www.johnstoncc.edu/

Transportation Profile

Public transportation offers mobility, particularly to people without cars. Transit can help bridge the spatial divide between people and jobs, services, and training opportunities. Public transportation also reduces fuel consumption, minimizes air pollution, and relieves traffic congestion. Walking to work helps protect the environment, while also providing the benefit of daily exercise.

Countywide, 0.6% of residents walk to work, compared to the state value of 1.8% and the regional value of 2.4%. Public transportation is rare in Johnston County, with an estimated 0.2% of residents commuting by public transportation, compared to the state value of 1.1% and the regional value of 0.4% (Figure 34). In Johnston County, 83.8% of workers 16 and older drive alone to work, compared to 81.1% in North Carolina and 81.4% in Health ENC counties (Figure 35).

Figure 34. Mode of Commuting to Work (American Community Survey, 2012-2016)

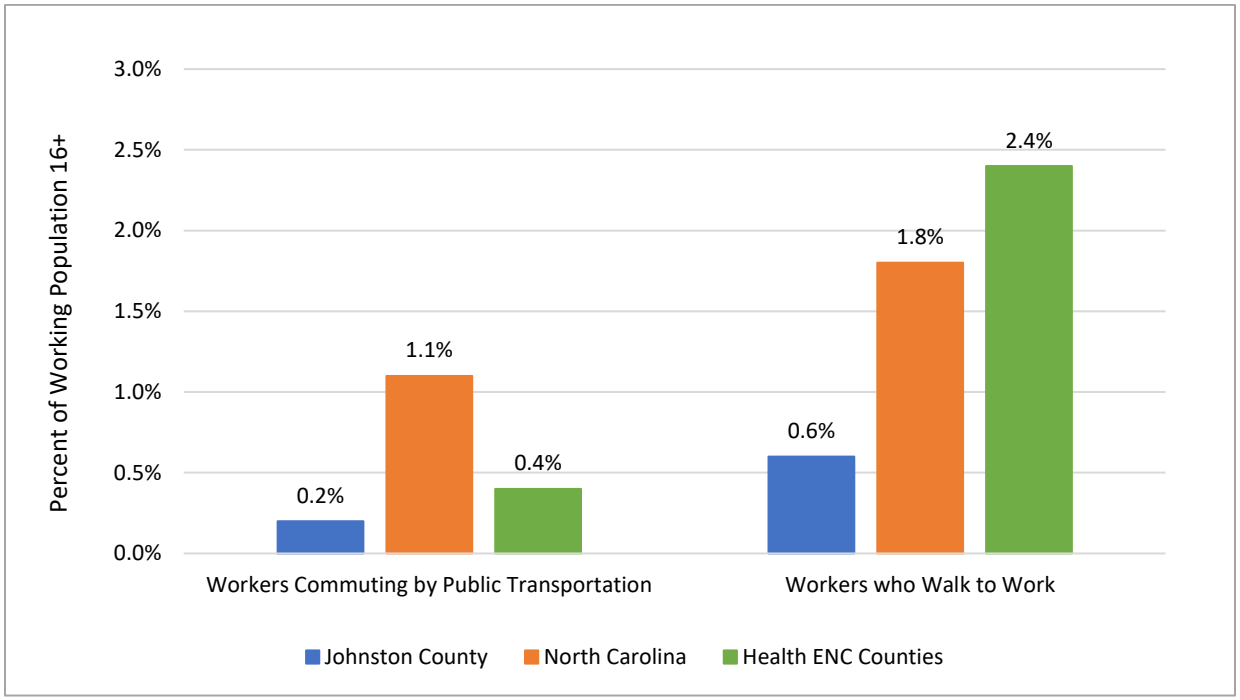
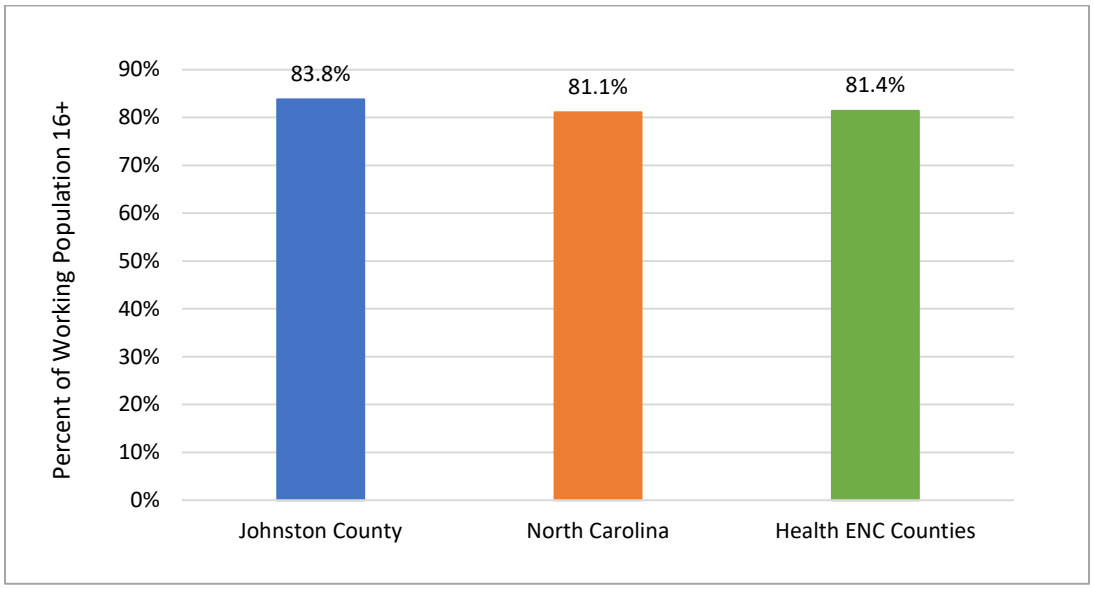


Figure 35. Workers who Drive Alone to Work (American Community Survey, 2012-2016)



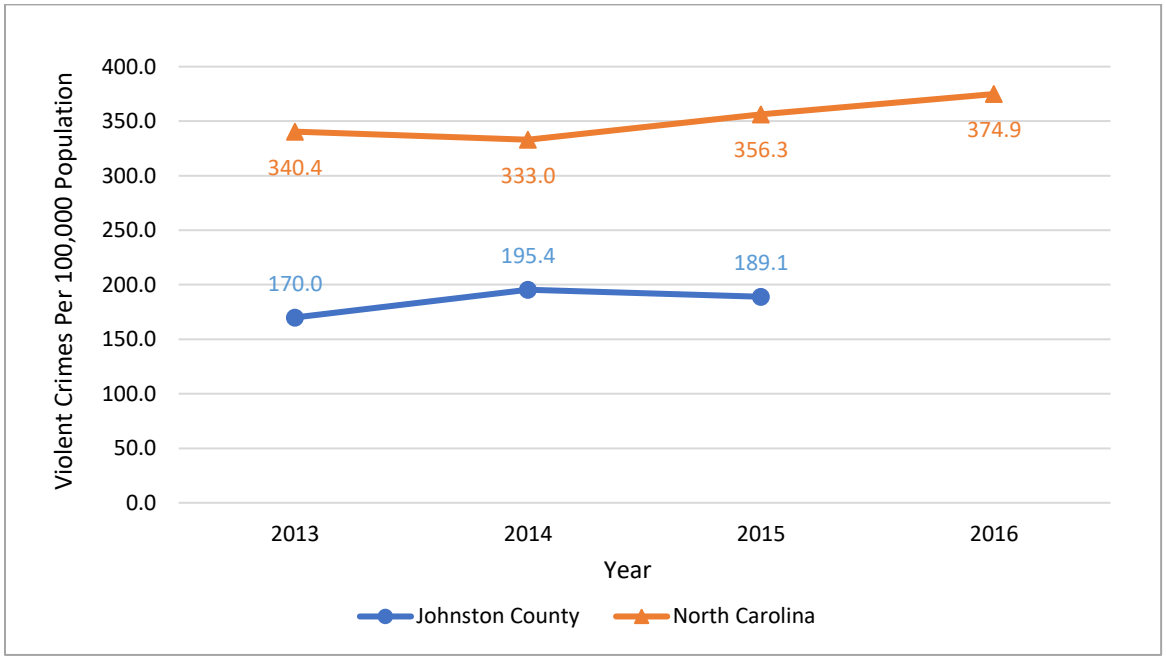
Crime and Safety

Violent Crime and Property Crime

Both violent crime and property crime are used as indicators of a community's crime and safety. Violence negatively impacts communities by reducing productivity, decreasing property values and disrupting social services. Violent crime includes four offenses: murder and non-negligent manslaughter, rape, robbery, and aggravated assault. Property crime includes the offenses of burglary, larceny-theft, motor vehicle theft, and arson.

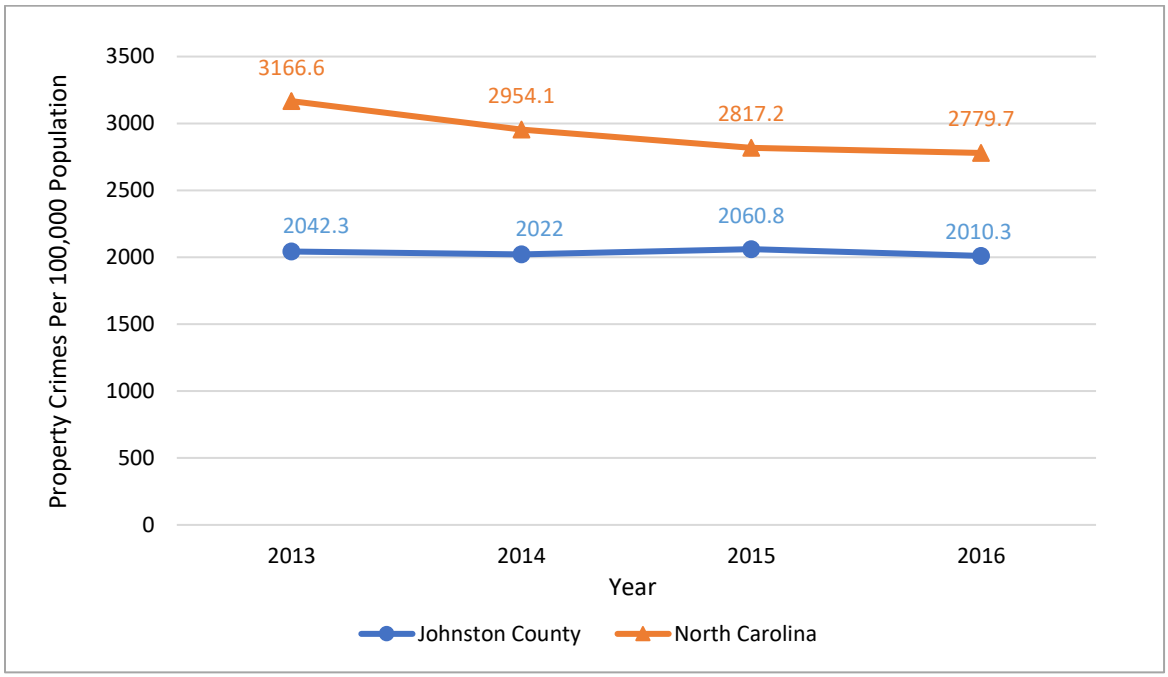
The violent crime rate in Johnston County is 189.1 per 100,000 population in 2015, compared to 356.3 per 100,000 people in North Carolina (Figure 36).

Figure 36. Violent Crime Rate (North Carolina Department of Justice)



The property crime rate in Johnston County (2,010.3 per 100,000 people) is lower than the state value (2,779.7 per 100,000 people) (Figure 37). While the property crime rate has decreased in the state from 2013-2016, the rate has remained relatively stable in Johnston County over the same timeframe.

Figure 37. Property Crime Rate (North Carolina Department of Justice)



Juvenile Crime

Youth who commit a crime may not gain the educational credentials necessary to secure employment and succeed later in life. Negative peer influences, history of abuse/neglect, mental health issues, and significant family problems increase the risk of juvenile arrest. The juvenile justice system aims to reduce juvenile delinquency through prevention, intervention, and treatment services.

Figure 38 shows the juvenile undisciplined rate per 1,000 youth ages 6-17 years old. The undisciplined rate describes juveniles who are unlawfully absent from school, regularly disobedient and beyond disciplinary control of the parent/guardian, are regularly found where it is unlawful for juveniles to be, or have run away from home for more than 24 hours. The 2017 juvenile undisciplined rate in Johnston County (0.6) is lower than the rate in North Carolina (1.5) and the Health ENC region (1.1).

Figure 38. Juvenile Undisciplined Rate (North Carolina Department of Public Safety)

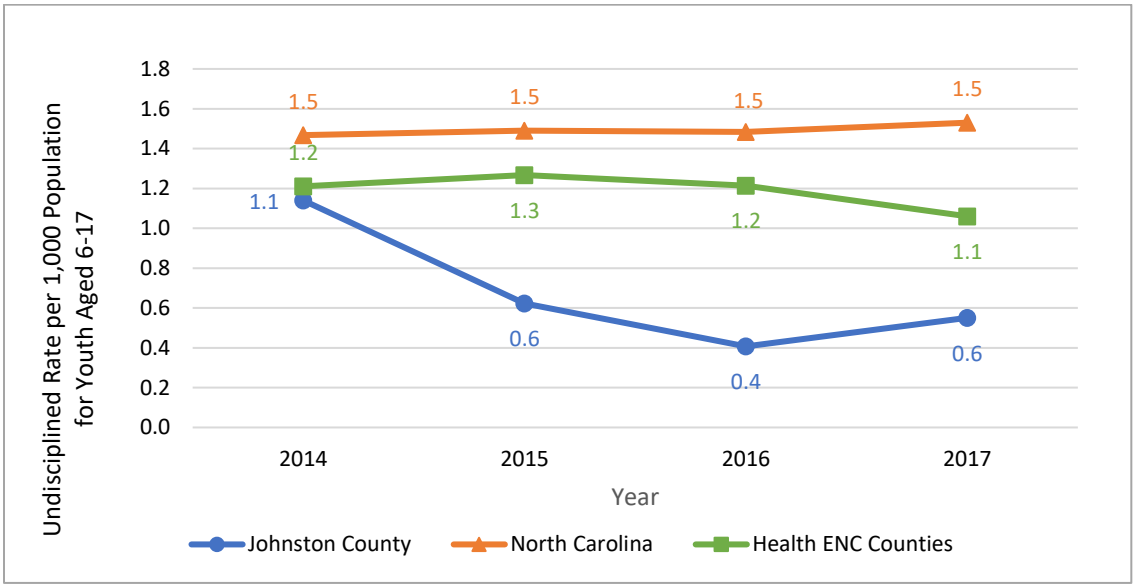
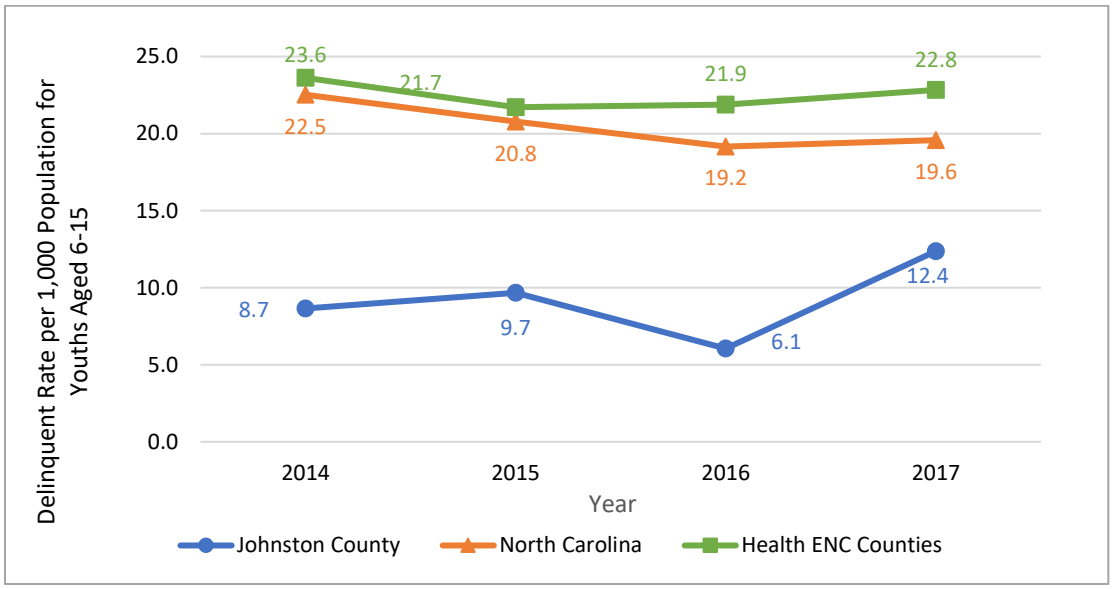


Figure 39 shows the juvenile delinquent rate, or juvenile crime rate, per 1,000 youth ages 6-15 years old. The 2017 juvenile delinquent rate in Johnston County (12.4) is lower than the rate in North Carolina (19.6) and the Health ENC region (22.8).

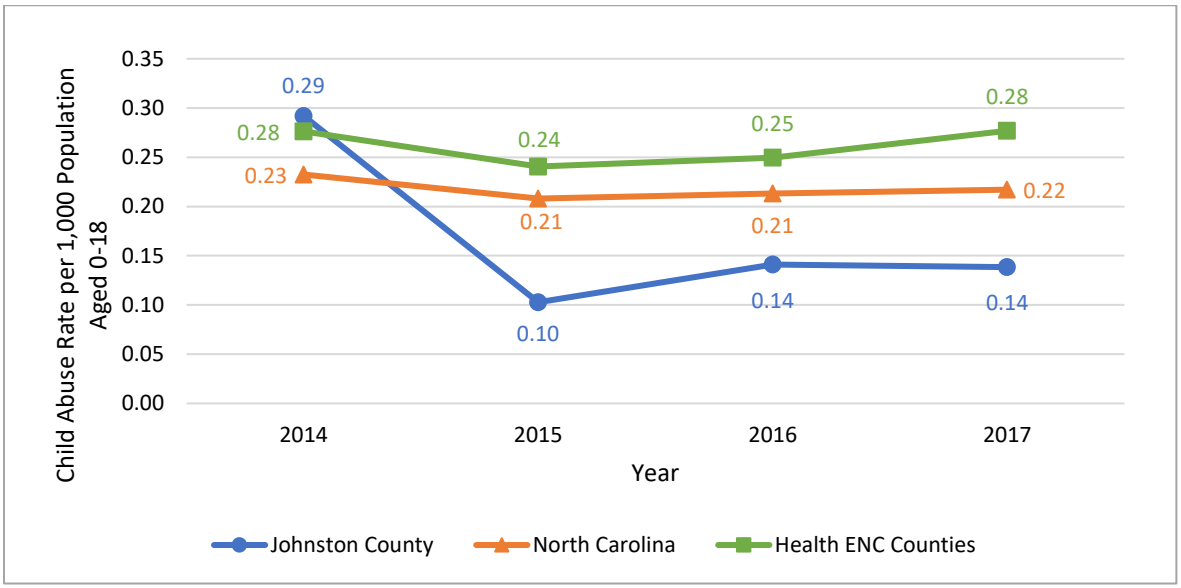
Figure 39. Juvenile Delinquent Rate (North Carolina Department of Public Safety)



Child Abuse

Child abuse includes physical, sexual and emotional abuse. All types of child abuse and neglect can have long-lasting effects throughout life, damaging a child's sense of self, ability to have healthy relationships, and ability to function at home, at work, and at school. Figure 40 shows the child abuse rate per 1,000 population aged 0-18. The 2017 child abuse rate in Johnston County (0.14 per 1,000 population) is lower than the rate in North Carolina (0.22) and the Health ENC region (0.28).

Figure 40. Child Abuse Rate
(Management Assistance for Child Welfare, Work First, and Food & Nutrition Services in North Carolina & University of North Carolina at Chapel Hill Jordan Institute for Families)

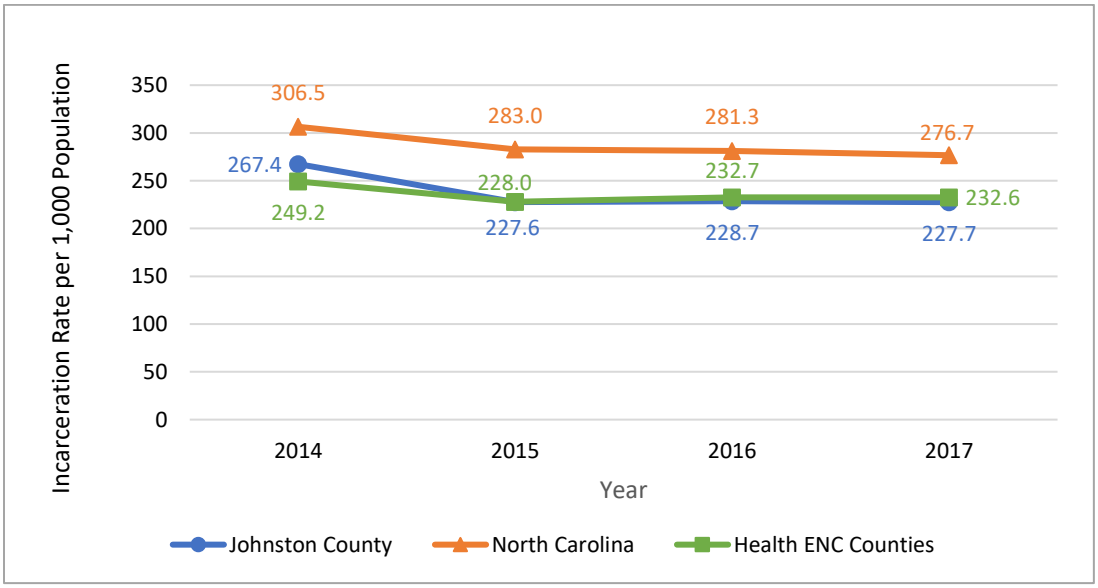


Incarceration

According to the U.S. Bureau of Justice Statistics, approximately one out of 100 adults in the U.S. are in jail or prison. Conditions in jails and prisons can lead to an increased risk of infectious diseases such as tuberculosis and hepatitis C, as well as assault from other inmates. After incarceration, individuals are likely to face a variety of social issues such as employment discrimination, disruption of family relationships and recidivism.

Figure 41 shows the incarceration rate per 1,000 population. The 2017 incarceration rate in Johnston County (227.7 per 1,000 population) is lower than the state rate (276.7) and similar to the regional rate (232.6).

Figure 41. Incarceration Rate (North Carolina Department of Public Safety)



Access to Healthcare, Insurance and Health Resources Information

Health Insurance

Medical costs in the United States are very high. People without health insurance may not be able to afford medical treatment or prescription drugs. They are also less likely to get routine checkups and screenings, so if they do become ill they may not seek treatment until the condition is more advanced, and therefore more difficult and costly to treat.

Figure 42 shows the percent of people aged 0-64 years old that have any type of health insurance coverage. The rate for Johnston County, 87.1%, is similar to the rate for North Carolina (87.8%) and the Health ENC region (87.2%). Nearly 13% of the population in Johnston County is uninsured.

Figure 42. Persons with Health Insurance (Small Area Health Insurance Estimates, 2016)

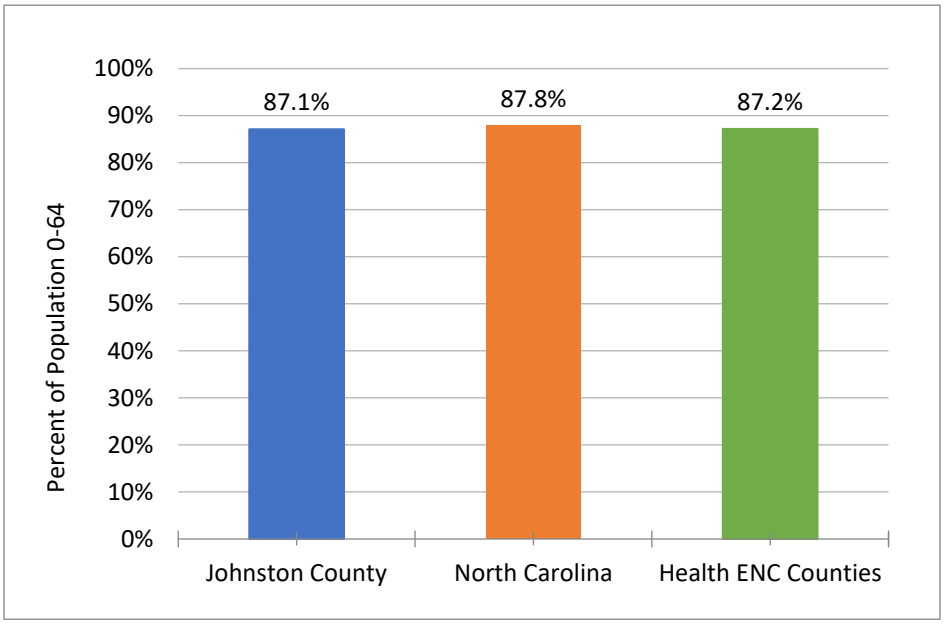
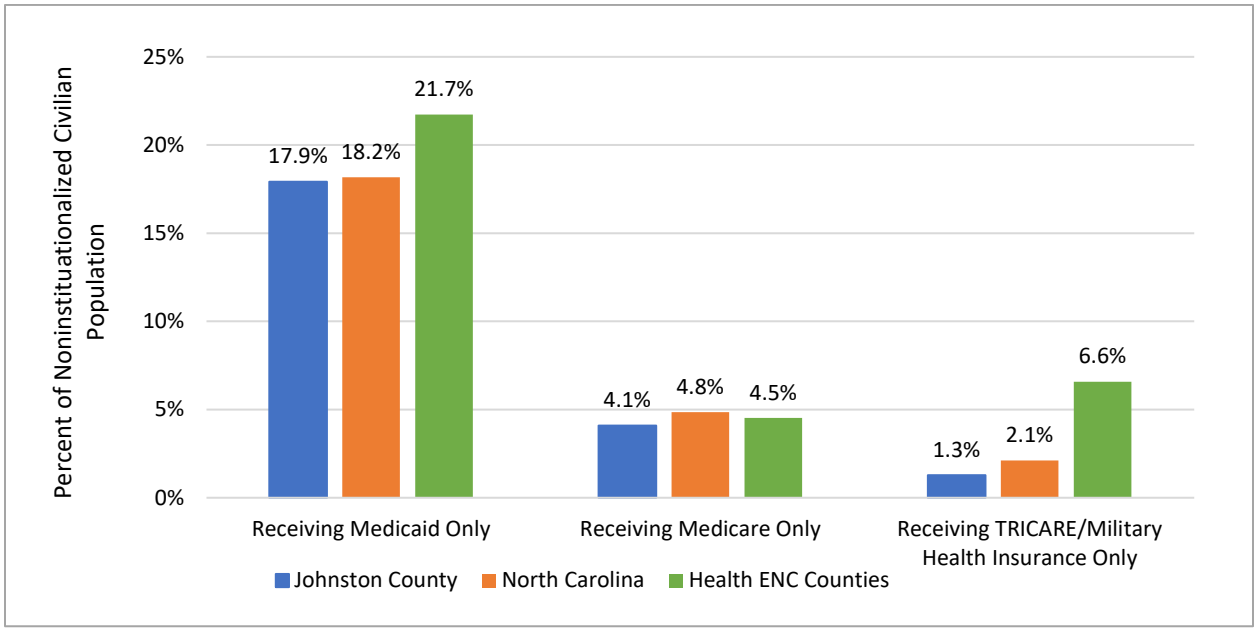


Figure 43 shows the percent of the population only receiving health insurance through Medicaid, Medicare, or military healthcare (TRICARE). Johnston County has a lower percentage of people receiving Medicaid (17.9%) than North Carolina (18.2%) and Health ENC counties (21.7%). The percent of people receiving Medicare is also lower in Johnston County (4.1%) when compared to North Carolina (4.8%) and Health ENC counties (4.5%). Similarly, the percent of people receiving military health insurance is lower in Johnston County (1.3%) than in North Carolina (2.1%) and Health ENC counties (6.6%).

Figure 43. Persons Only Receiving Health Insurance through Medicaid, Medicare or Military Healthcare (American Community Survey, 2012-2016)



Civic Activity

Political Activity

Exercising the right to vote allows a community to choose elected officials and hold them accountable. Voting ensures that all citizens have the opportunity to voice their opinions on issues such as the use of tax dollars, civil rights and foreign policy. By voting, individuals shape their communities and influence the next generation of society. A high level of voter turnout indicates that citizens are involved and interested in who represents them in the political system.

Figure 44 shows the voting age population, or percent of the population aged 18 years and older. Johnston County has a lower percent of residents of voting age (74.0%) than North Carolina (77.3%) and Health ENC counties (76.7%).

Figure 44. Voting Age Population (American Community Survey, 2012-2016)

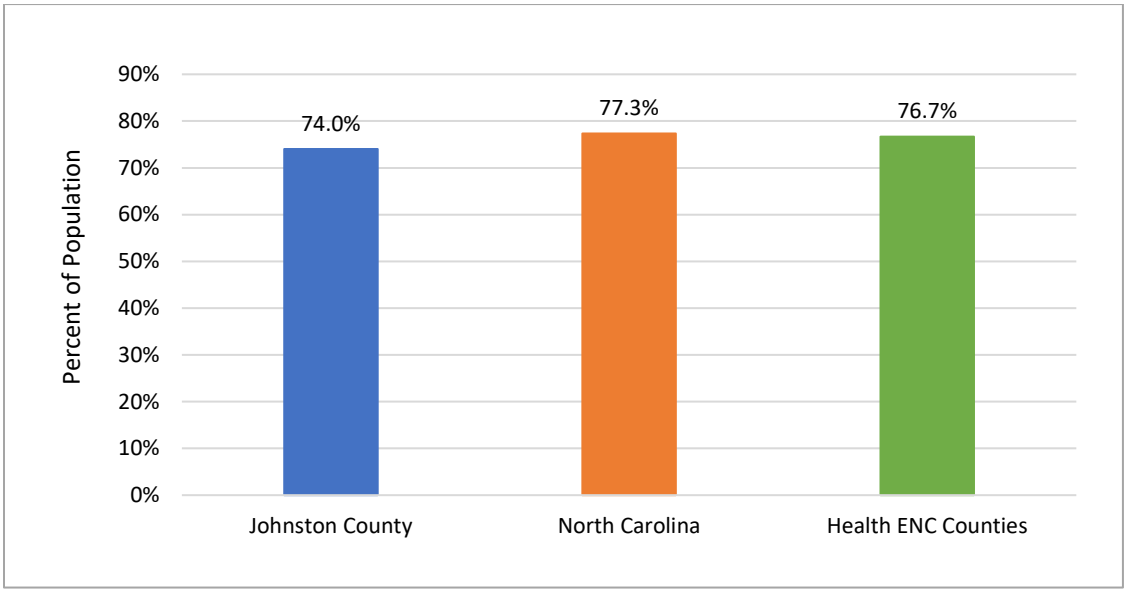
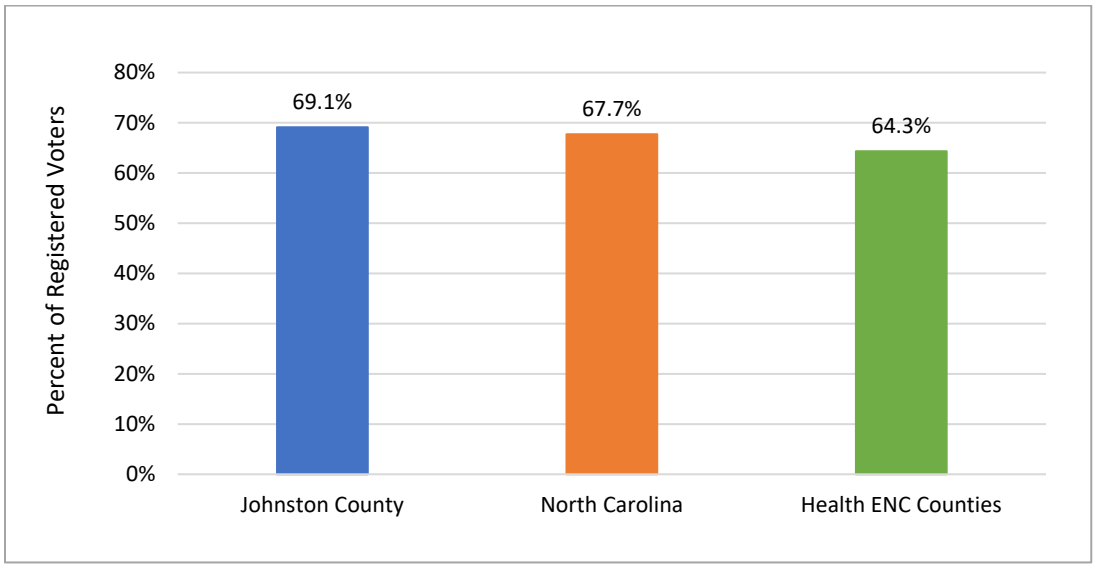


Figure 45 shows the percent of registered voters who voted in the last presidential election. The rate in Johnston County was 69.1%, which is higher than the state value (67.7%) and regional value (64.3%).

Figure 45. Voter Turnout in the Last Presidential Election (North Carolina State Board of Elections, 2016)



Findings

Secondary Data Scoring Results

Table 10 shows the data scoring results for Johnston County by topic area. Topics with higher scores indicate greater need. Heart Disease & Stroke is the poorest performing health topic for Johnston County, followed by Access to Health Services, Respiratory Diseases, Other Chronic Diseases and Transportation.

Table 10. Secondary Data Scoring Results by Topic Area

Health Topic	Score
Heart Disease & Stroke	2.03
Access to Health Services	1.99
Respiratory Diseases	1.98
Other Chronic Diseases	1.92
Transportation	1.89

*See Appendix B for additional details on the indicators within each topic area

Primary Data

Community Survey

Figure 46 shows the list of community issues that were ranked by residents as most affecting the quality of life in Johnston County. Drugs/substance abuse was the most frequently selected issue and was ranked by 29.3% of survey respondents, followed by low-income/poverty. Less than 1% of survey respondents selected neglect and abuse, elder abuse, child abuse and rape/sexual assault as issues most affecting the quality of life in Johnston County.

Figure 46. Top Quality of Life Issues, as Ranked by Survey Respondents

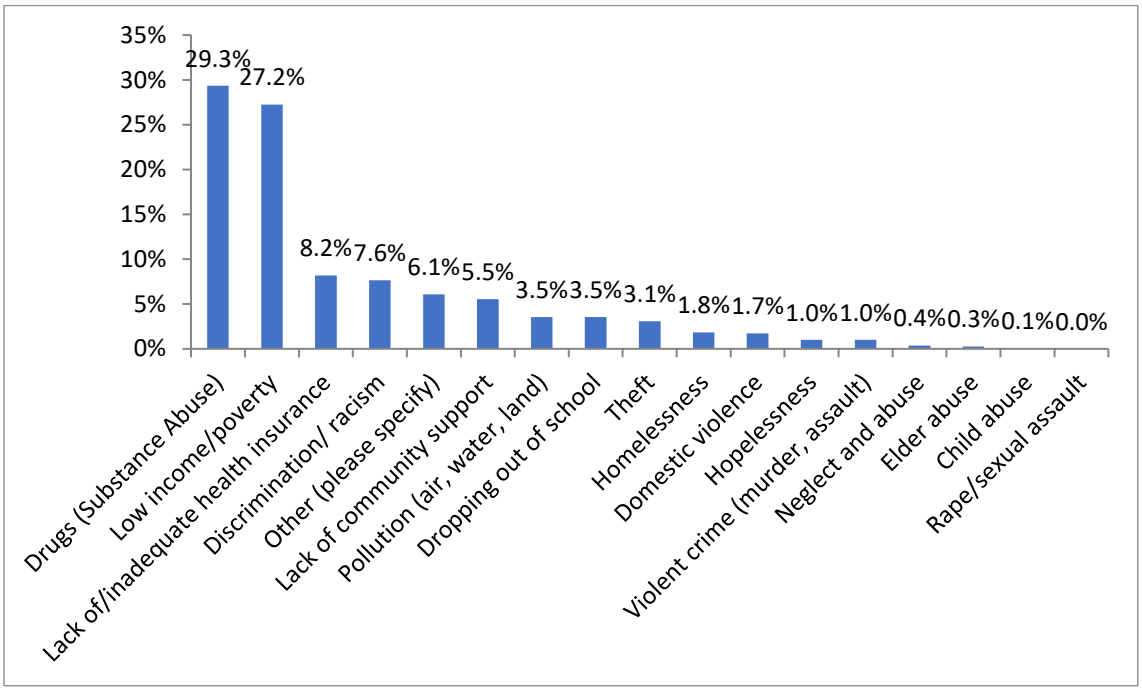


Figure 47 and Figure 48 displays the level of agreement among Johnston County residents in response to nine statements about their community. For the English and Spanish survey, more than half of survey respondents agreed or strongly agreed that the county is an easy place to buy healthy foods and there are good parks and recreation facilities. A quarter of English survey respondents disagreed (5%) or strongly disagreed (20%) that the county has plenty of economic opportunity. For the Spanish survey only, half or more half of survey respondents agreed or strongly agreed that the county has affordable housing, there is plenty of help in times of need and the county is a safe place to live.

Figure 47. Level of Agreement Among Johnston County Residents in Response to Nine Statements about their Community-English

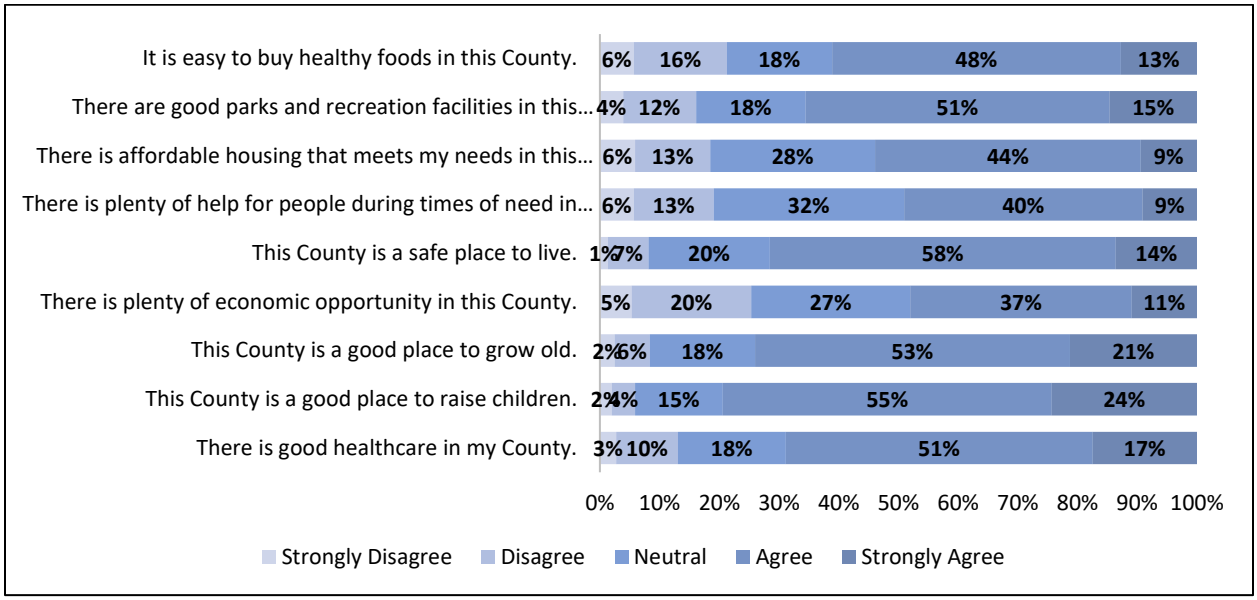


Figure 48. Level of Agreement Among Johnston County Residents in Response to Nine Statements about their Community-Spanish

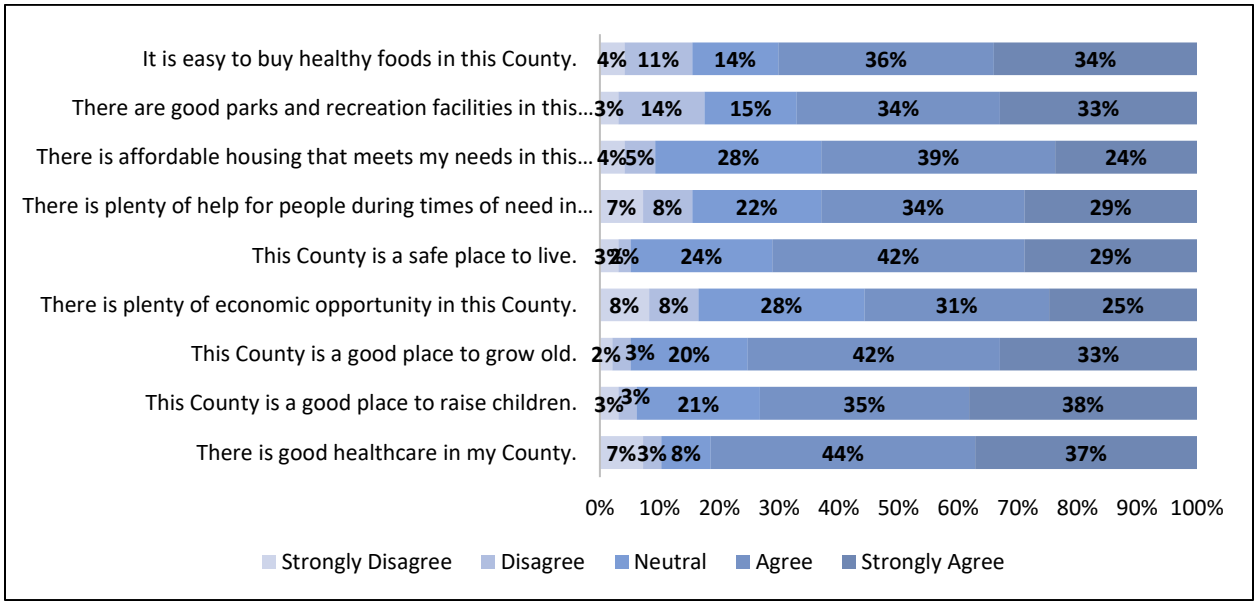


Figure 49 and Figure 50 shows the list of services that were ranked by residents as needing the most improvement in Johnston County. Higher paying employment was the most frequently selected issue by English survey respondents, followed by more affordable health services, transportation and counseling

mental health support. Spanish survey respondents selected higher paying employment, followed by transportation and services for disabled persons.

Figure 49. Services Needing the Most Improvement, as Ranked by Survey Respondents-English

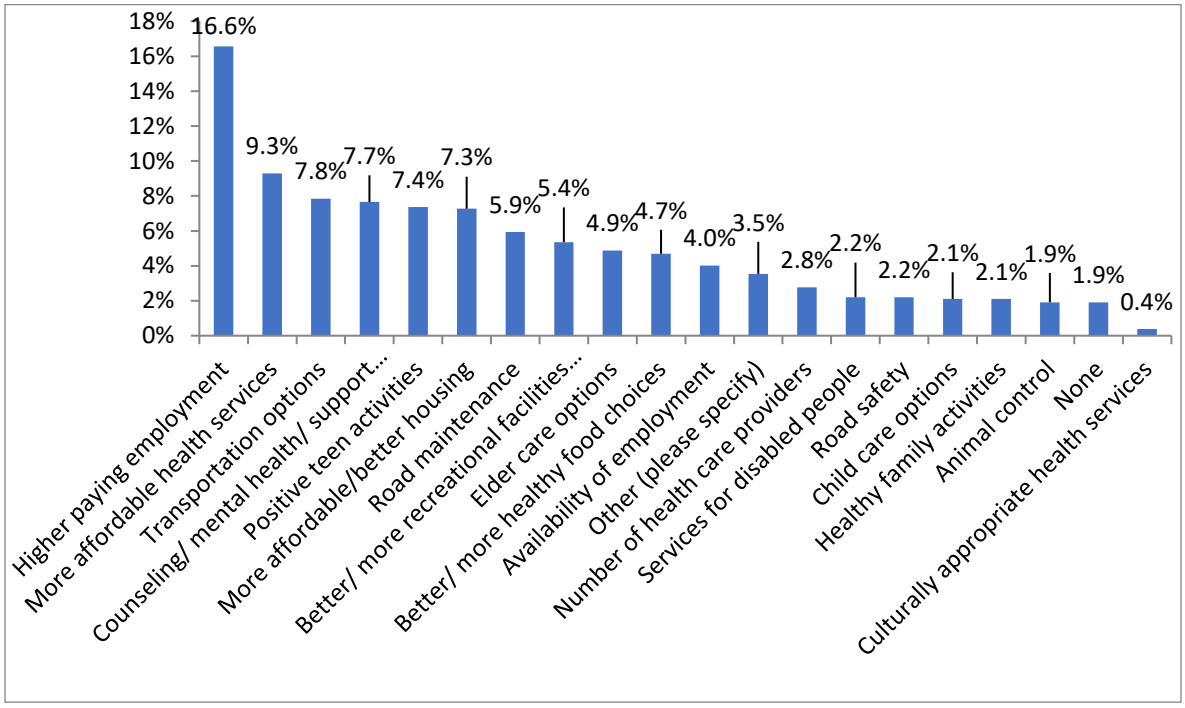


Figure 50. Services Needing the Most Improvement, as Ranked by Survey Respondents-Spanish

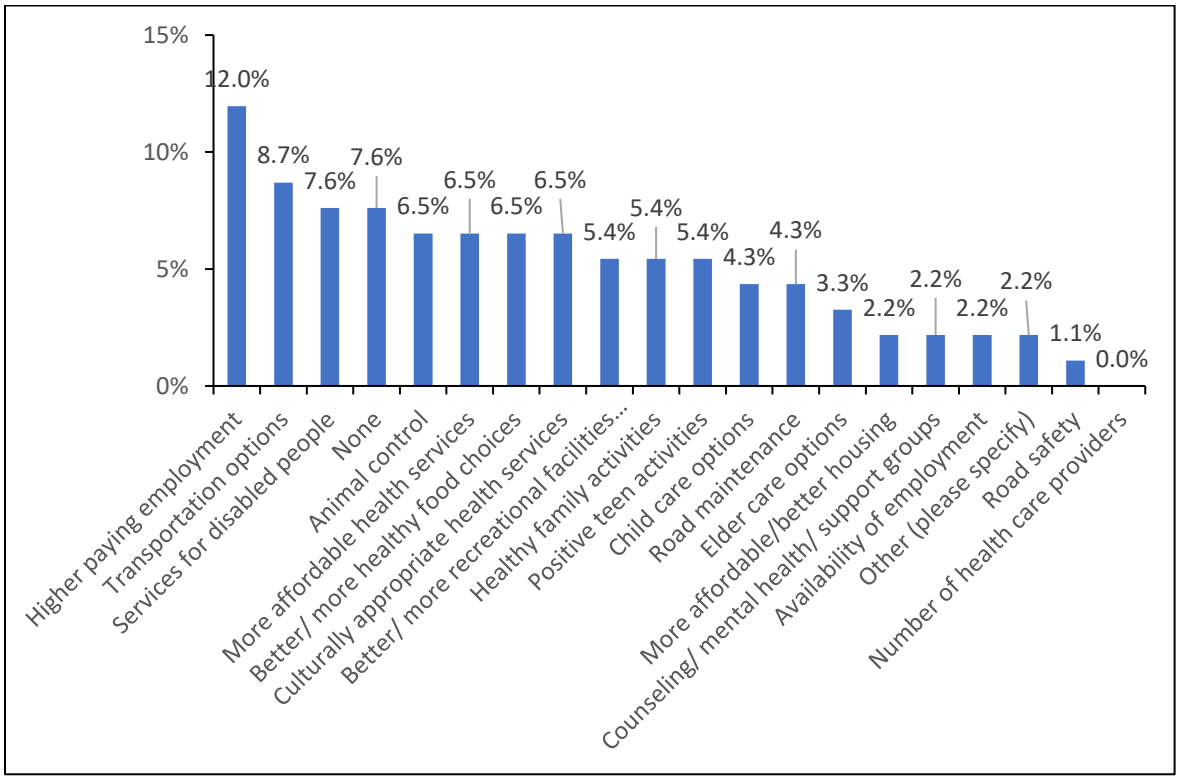


Figure 51 and Figure 52 shows a list of health behaviors that were ranked by residents as topics that Johnston County residents need more information about. Substance abuse prevention was the most frequently selected issue by English survey respondents (19.8%) while eating well/nutrition was the most frequently selected by Spanish survey respondents (19.1%).

Figure 51. Health Behaviors that Residents Need More Information About, As Ranked by Survey Respondents-English

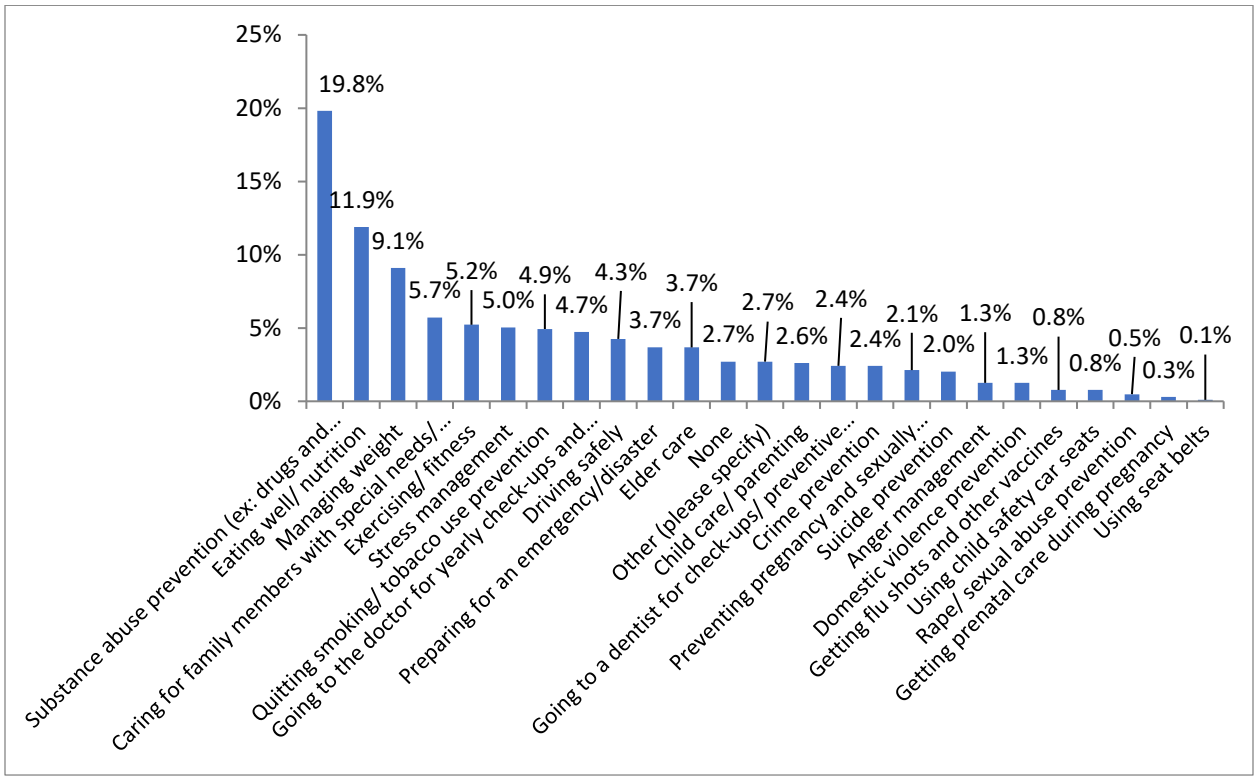
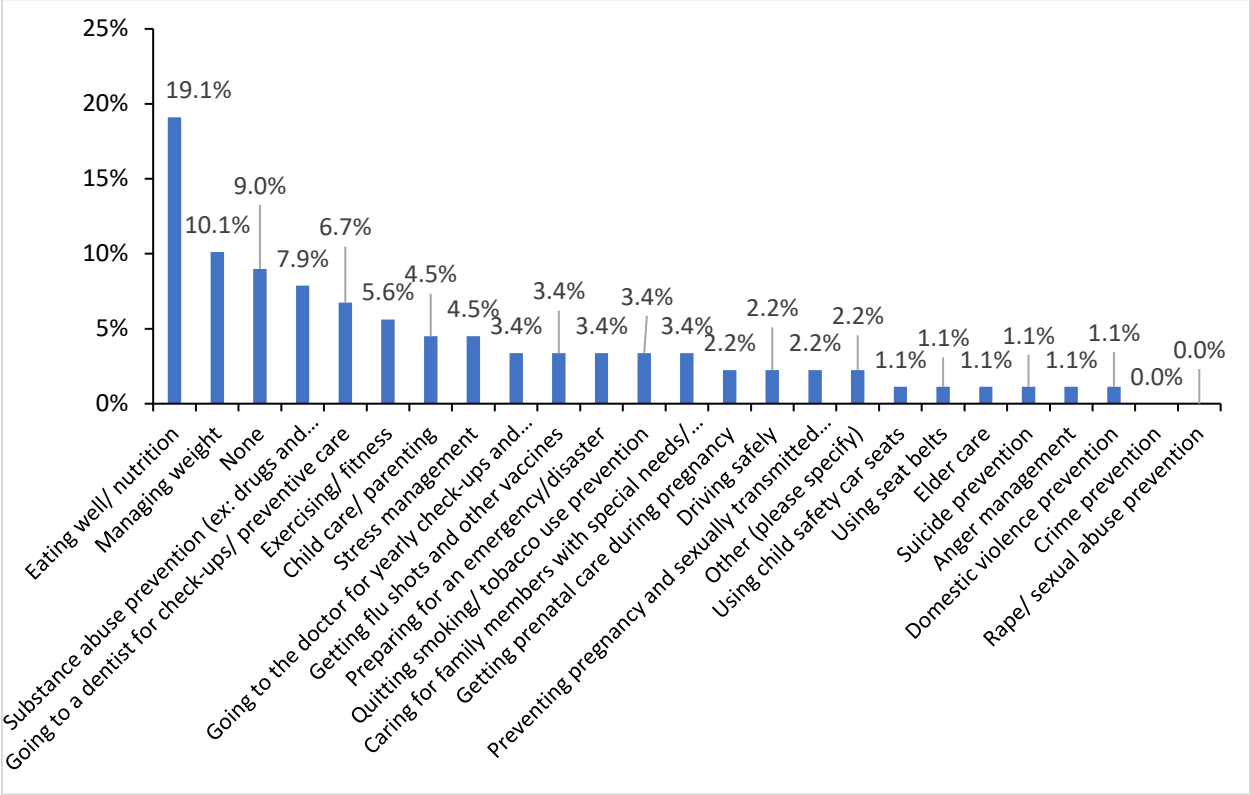


Figure 52. Health Behaviors that Residents Need More Information About, As Ranked by Survey Respondents-Spanish



Focus Group Discussions

Table 11 shows the focus group results for Johnston County by topic area or code. Focus Group transcript text were analyzed by the Conduent HCI team using a list of codes that closely mirror the health and quality of life topics used in the data scoring and community survey processes. Text was grouped by coded excerpts, or quotes, and quantified to identify areas of the highest need per the focus group participants. All excerpts/quotes were also categorized as a strength or a barrier/need based on the context in which the participant mentioned the topic. Topics with higher frequency and mentioned in the context of needs/concerns or barriers/challenges suggests a greater need in the community. Topics with a frequency of more than 15 are included in the overall list of significant health needs.

Table 11. Focus Group Results by Topic Area

Topic Area (Code)	Frequency
Exercise, Nutrition, & Weight	24
Economy	18
Transportation	12
Low-Income/Underserved	12
Access to Health Services	10

Data Synthesis

All forms of data have strengths and limitations. In order to gain a comprehensive understanding of the significant health needs for Johnston County, findings from the secondary data, community survey and focus group discussions were compared and analyzed for areas of overlap. The top needs from each data source were identified using the criteria displayed in Table 12.

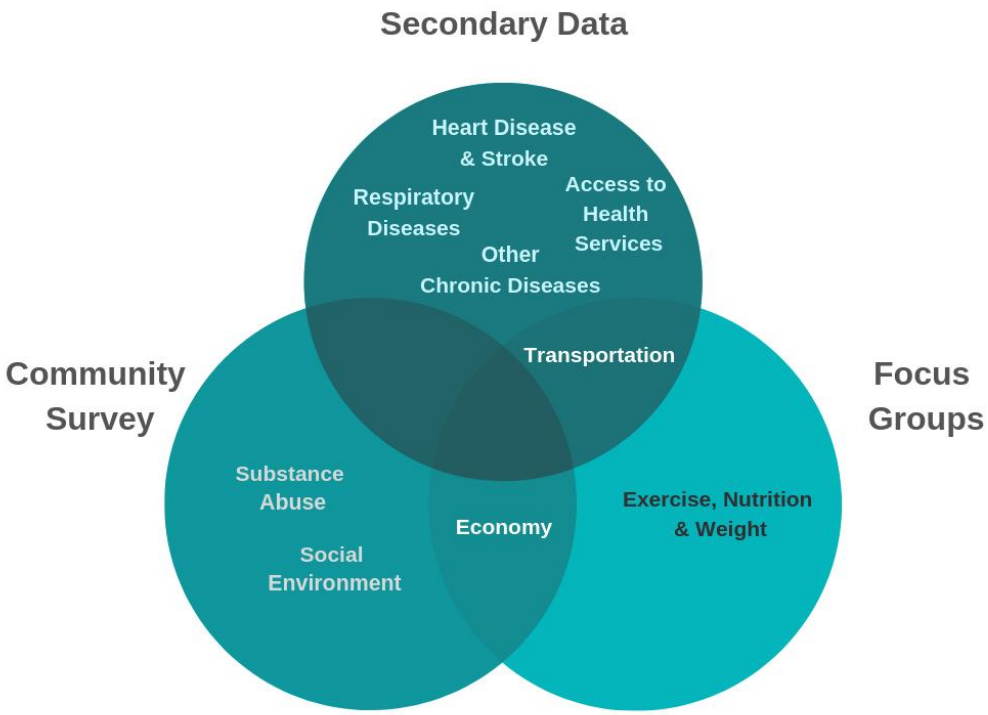
Table 12. Criteria for Identifying the Top Needs from each Data Source

Data Source	Criteria for Top Need
Secondary Data	Topics receiving highest data score
Community Survey	Community issues ranked by survey respondents as most affecting the quality of life*
Focus Group Discussions	Topics discussed most frequently by participants in context of needs/concerns or barriers/challenges to achieving health

*Community Survey Q4: Please look at this list of community issues. In your opinion, which one issue most affects the quality of life in this County?

Figure 53 displays the top needs from each data source in the Venn diagram.

Figure 53. Data Synthesis



Across all three data sources, there is strong evidence of need for Economy and Transportation. As seen in Figure 53, the survey results and focus group discussion analysis cultivated additional topics not ranked as top priorities in the secondary data findings. A mixed-methods approach is a strength when assessing a community as a whole. This process ensures robust findings through statistical analysis of health indicators and examination of constituent's perceptions of community health issues.

Topic Areas Examined in This Report

Nine topic areas were identified as high scoring across the three data sources. These topics are listed in Table 13.

Table 13. Topic Areas Examined In-Depth in this Report

Access to Health Services*
Economy
Exercise, Nutrition & Weight
Heart Disease & Stroke*
Other Chronic Diseases*
Respiratory Diseases*
Social Environment
Substance Abuse
Transportation*

The five topic areas with the highest secondary data scores (starred*) are explored in-depth in the next section and include corresponding data from community participants when available. Following the five topic areas is a section called 'Other Significant Health Needs' which includes discussion of the additional topics that were identified specifically in the community survey and focus group discussions. The additional topics in 'Other Significant Health Needs' includes Exercise, Nutrition & Weight, Economy, Social Environment and Substance Abuse.

Navigation Within Each Topic

Findings are organized by topic area. Within each topic, key issues are summarized followed by a review of secondary and primary data findings. Special emphasis is placed on populations that are highly impacted, such as older adults, race/ethnic groups or low-income populations. Figures, tables and extracts from quantitative and qualitative data substantiate findings. Each topic includes a table with key indicators from the secondary data scoring results. The value for Johnston County is displayed alongside relevant comparisons, gauges and icons which are color-coded with green indicating good, red indicating bad and blue indicating neutral. Table 14 describes the gauges and icons used to evaluate the secondary data.

Table 14. Description of Gauges and Icons used in Secondary Dara Scoring

Gauge or Icon	Description
	Green represents the "best" 50th percentile.
	Yellow represents the 50th to 25th quartile
	Red represents the "worst" quartile.
	There has been a non-significant increase/decrease over time.
	There has been a significant increase/decrease over time.
	There has been neither a statistically significant increase nor decrease over time.

Heart Disease & Stroke

Key Issues

- Indicators within Heart Disease & Stroke are of particular concern for the Medicare population
- Johnston County is in the worst quartile of North Carolina counties for ischemic heart disease and hyperlipidemia
- Johnston County is in the worst quartile of United Sates counties for ischemic heart disease, hyperlipidemia, and hypertension

Secondary Data

The secondary data scoring results reveal Heart Disease and Stroke as the top need in Johnston County with a score of 2.03. Additional analysis is performed to find specific indicators that contribute to this area of concern, and these indicators are identified with high indicator data scores, shown in, shown in Table 15.

Table 15. Data Scoring Results for Heart Disease & Stroke

Score	Indicator (Year) (Units)	Johnston County	North Carolina	U.S.	North Carolina Counties	U.S. Counties	Trend	Healthy NC 2020	HP 2020
2.3	Ischemic Heart Disease: Medicare Population (2015) (percent)	35.7	24	26.5				-	-
1.9	Stroke: Medicare Population (2015) (percent)	4.1	3.9	4				-	-
2.5	Hyperlipidemia: Medicare Population (2015) (percent)	51.6	46.3	44.6				-	-
2	Hypertension: Medicare Population (2015) (percent)	62.6	58	55				-	-

**See Appendix B for full list of indicators included in each topic area*

Heart disease is of particular concern for the Medicare population as evident in the table above. Johnston County has higher rates of ischemic heart disease (35.7%), stroke (4.1%), hyperlipidemia (51.6%), and hypertension (62.6%) amongst the Medicare population, compared to the North Carolina values and the US Value for those indicators.

Primary Data

47% of English survey respondents reported being told by a health professional that they have high blood pressure and 39% reported being told they have high cholesterol. Spanish survey respondents report only 12.7% having been told they have high blood pressure and 11.6% being told they have high cholesterol. The contrast between the two surveys is striking and may partially be explained by the demographic differences between groups or could also have to do with Spanish survey respondents reporting not having insurance and receiving less preventive care. Heart Disease and Stroke came up in two focus groups and was mentioned specifically by three participants as a primary concern in the community. One participant discussed high blood pressure as an issue and the other participants raised congestive heart failure (CHF) as a top issue.

Highly Impacted Populations

Data scoring indicates that the Medicare population may be a highly impacted population within the Heart Disease & Stroke topic area.

Access to Health Services

Key Issues

- Johnston County has less availability of primary care providers, mental health care providers, and dentists; compared to other counties in North Carolina and other counties in the United States
- Johnston County is in the worst quartile of North Carolina counties for preventable hospital stays

Secondary Data

The secondary data scoring results reveal Access to Health Services as a top need in Johnston County with a score of 1.99. Additional analysis is performed to find specific indicators that contribute to this area of concern, and these indicators are identified with high indicator data scores, shown in, shown in Table 16.

Table 16. Data Scoring Results for Access to Health Services

Score	Indicator (Year) (Units)	Johnston County	North Carolina	U.S.	North Carolina Counties	U.S. Counties	Trend	Healthy NC 2020	HP 2020
2.3	Primary Care Provider Rate (2015) (providers/ 100,000 population)	30.2	70.6	75.5				-	-
2.3	Preventable Hospital Stays: Medicare Population (2014) (discharges/ 1,000 Medicare enrollees)	72.2	49	49.9				-	-
2.1	Mental Health Provider Rate (2017) (providers/ 100,000 population)	86.2	215.5	214.3				-	-
2.3	Dentist Rate (2016) (dentists/ 100,000 population)	22.5	54.7	67.4				-	-

**See Appendix B for full list of indicators included in each topic area*

Johnston County has a rate of 30.2 primary care providers/100,000 population, which is lower than the state of North Carolina (70.6 providers/100,000 population) and the United States (75.5

providers/100,000 population). Additionally, Johnston County has a rate of 86.2 mental health care providers/100,000 population which is far lower than the state of North Carolina (215.5 providers/100,000 population) and the United States (214.3 providers/100,000 population). Lastly, of particular concern is the preventable hospital stays. The measure of preventable hospitalizations in a community indicates the quality and accessibility of primary health care services available. If the quality of care in the outpatient setting is poor, then people may be more likely to overuse the hospital as a main source of care and be hospitalized unnecessarily. Johnston County has higher rates of preventable hospital stays, indicating overuse of the hospital unnecessarily.

Primary Data

According to the community survey, 75% of English respondents and 86.4% of Spanish respondents see most of their medical providers in Johnston County. The top reason both English and Spanish survey respondents gave for not being able to get necessary medical services that they needed was not having health insurance. In addition, both survey groups stated they had the most difficulty receiving services from a dentist in comparison to other types of health care providers.

Access to health services is a clear issue in Johnston County because of the lack of healthcare providers in the community. Focus Group participants primarily raised issues they faced with accessing medical care. Participants discussed difficulties scheduling appointments due to appointment availability or their work schedule. They described challenges with finding providers nearby and having to travel long distances to see the health care provider that they needed. Discussion also focused on groups participants felt faced challenges with accessing medical services which included those who live in more remote locations of the county and the Hispanic population due to language barriers. A couple participants reported difficulties for individuals with disabilities such as those individuals who are blind accessing medical facilities and for those with hearing issues, challenges with being able access health information or education resources. Several participants shared challenges with affording medical care in addition to basic living expenses.

Highly Impacted Populations

Primary data identified the Hispanic/Latino population, the elderly, uninsured and individuals with disabilities as groups that may be highly impacted within the Access to Health Services topic area.

Respiratory Diseases

Key Issues

- Asthma and COPD are indicators of concern for the Medicare population
- The age-adjusted death rate due to lung cancer is higher in Johnston County compared to the North Carolina value and the United States value
- Tuberculosis is a concern in Johnston County and has not met the HP2020 objective

Secondary Data

The secondary data scoring results reveal Respiratory Diseases as a top health need in Johnston County with a score of 1.98. Additional analysis is performed to find specific indicators that contribute to this area of concern, and these indicators are identified with high indicator data scores, shown in, shown in Table 17.

Table 17. Data Scoring Results for Respiratory Diseases

Score	Indicator (Year) (Units)	Johnston County	North Carolina	U.S.	North Carolina Counties	U.S. Counties	Trend	Healthy NC 2020	HP 2020
2.5	Asthma: Medicare Population (2015) (percent)	9.8	8.4	8.2				-	-
2.5	COPD: Medicare Population (2015) (percent)	15.7	11.9	11.2				-	-
2.25	Age-Adjusted Death Rate due to Lung Cancer (2010-2014) (deaths/ 100,000 population)	56.4	50.7	44.7				-	45.5
2.43	Tuberculosis Incidence Rate (2014) (cases/ 100,000 population)	3.4	2	3				-	1

**See Appendix B for full list of indicators included in each topic area*

Asthma and COPD are two indicators of particular concern in Johnston County. For the Medicare population, approximately 9.8% of the population have asthma and another 15.7% of the Medicare population have COPD, which is higher than the state and national averages. Healthy People 2020 has

set a national objective of 45.5 deaths/100,000 population due to lung cancer; the state of North Carolina (50.7 deaths/100,000 population) and Johnston County (56.4 deaths/100,000 population) have not met this goal. Time trend analysis show that the lung cancer rate is neither improving nor getting worst.

Primary Data

15.3% of English survey respondents and 13% of Spanish respondents reported being told by a health care professional that they have asthma. Respiratory Diseases, specifically chronic obstructive pulmonary disease (COPD), was mentioned by three participants as a top health issue impacting the community.

Highly Impacted Populations

Secondary data suggests that the Medicare population is a group that is highly impacted within the Respiratory Diseases topic area.

Other Chronic Diseases

Key Issues

- Chronic Kidney Disease and Rheumatoid Arthritis or Osteoarthritis are diseases of major concern in the Medicare population of Johnston County

Secondary Data

The secondary data scoring results reveal Other Chronic Diseases as top health issues in Johnston County with a score of 1.92. Additional analysis is performed to find specific indicators that contribute to this area of concern, and these indicators are identified with high indicator data scores, shown in, shown in Table 18.

Table 18. Data Scoring Results for Other Chronic Diseases

Score	Indicator (Year) (Units)	Johnston County	North Carolina	U.S.	North Carolina Counties	U.S. Counties	Trend
2.4	Chronic Kidney Disease: Medicare Population (2015) (percent)	20.3	19	18.1			
2.55	Rheumatoid Arthritis or Osteoarthritis: Medicare Population (2015) (percent)	32.9	29.1	30			

**See Appendix B for full list of indicators included in each topic area*

As evident in the table above, chronic kidney disease and rheumatoid arthritis or osteoarthritis are diseases of major concern for the Medicare population of Johnston County. Looking closely at the chronic kidney disease, this health condition effects approximately 20.3% of the Medicare population in Johnston County, which is higher than the North Carolina value (19.0%) and the U.S. value (18.1%). This pattern is similarly evident for rheumatoid arthritis or osteoarthritis. Time trend analysis shows that both chronic kidney disease and rheumatoid arthritis or osteoarthritis are significantly increasing.

Primary Data

According to community survey, 13.7% of English respondents have been told by a health care professional that they have osteoporosis while 0% of the Spanish survey respondents have been told the same. Similar to previous topics, this difference may be due to differences amongst the surveys participants demographics or may indicate a lack of access to preventative services amongst the Spanish survey respondents. The focus groups did not explicitly raise the topic of other chronic disease or specifically references to kidney disease, arthritis or osteoporosis.

Highly Impacted Populations

Secondary data suggests that the Medicare population is a group that is highly impacted within the Respiratory Diseases topic area.

Transportation

Key Issues

- Workers in Johnston County have long commutes and tend to drive alone
- A very small proportion of workers walk to work and even fewer workers in Johnston County use public transportation

Secondary Data

The secondary data scoring results reveal Transportation as a top need in Johnston County with a score of 1.89. Additional analysis is performed to find specific indicators that contribute to this area of concern, and these indicators are identified with high indicator data scores, shown in, shown in Table 19.

Table 19. Data Scoring Results for Transportation

Score	Indicator (Year) (Units)	Johnston County	North Carolina	U.S.	North Carolina Counties	U.S. Counties	Trend	Healthy NC 2020	HP 2020
2.2	Workers Commuting by Public Transportation (2012-2016) (percent)	0.2	1.1	5.1				-	5.5
2.5	Mean Travel Time to Work (2012-2016) (minutes)	29.4	24.1	26.1				-	-
2.5	Solo Drivers with a Long Commute (2012-2016) (percent)	47.8	31.3	34.7				-	-
2.45	Workers who Walk to Work (2012-2016) (percent)	0.6	1.8	2.8				-	3.1

**See Appendix B for full list of indicators included in each topic area*

Transportation is an issue as evident in the secondary data. Johnston County workers have longer commutes (29.4 minutes) compared to the average for the state (24.1 minutes) and the average for the nation (26.1 minutes). Additionally, almost 50% of Johnston County commuters drive alone and have a long commute, which is in the worst quartile of North Carolina and United States counties. Johnston County is also in the worst quartile for workers who walk to work, and only approximately 0.2% of workers commute by public transportation, which does not meet the HP 2020 objective of 5.5%.

"There are major transportation and proximity barriers that exist for residents."
-Focus Group Participant

Primary Data

Transportation was selected by community survey respondents as the third highest ranking service needing improvement in the community in the English survey. Transportation was the second highest ranking service needing improvement in the Spanish survey.

Transportation was brought up over twenty times in the focus group discussions; participants shared that they would like to have more options for public transportation and found accessing transportation for medical appointments particularly challenging. One participant shared that one issue with publicly available transportation is the length of time it takes to get where people need to go and another brought up that the system doesn't go everywhere that they need. Another issue that was raised by participants is that they would like to be able to walk more places, but are unable to due to a lack of sidewalks.

> *"Changes to existing services to include shorter wait times for JCATS riders. They get to an appointment two hours early and then have to wait two to three hours to get picked up. They end up spending eight hours for one appointment."*
>
> -Focus Group Participant

Highly Impacted Populations

Primary data suggests that those located in more rural areas of the county may be a group that is highly impacted within the Transportation topic area.

Mortality

Knowledge about the leading causes of death in a population is critical to understanding how to target interventions to maximize population health. Table 20 shows the leading causes of mortality in Johnston County, North Carolina, and Health ENC Counties in 2014-2016, where the rate is age-adjusted to the 2000 U.S. standard population and is given as an age-adjusted death rate per 100,000 population.

Table 20. Leading Causes of Mortality (2014-2016, CDC WONDER)

	Johnston County			North Carolina			Health ENC Counties		
Rank	**Cause**	**Deaths**	**Rate***	**Cause**	**Deaths**	**Rate***	**Cause**	**Deaths**	**Rate***
1	Cancer	979	170.6	Cancer	58,187	165.1	Cancer	12,593	177.5
2	Heart Diseases	963	189.5	Heart Diseases	54,332	159	Heart Diseases	12,171	178.8
3	Chronic Lower Respiratory Diseases	279	53.8	Chronic Lower Respiratory Diseases	15,555	45.1	Cerebrovascular Diseases	3,247	48.5
4	Accidental Injuries	239	45.6	Accidental Injuries	15,024	48.2	Accidental Injuries	3,136	50.1
5	Cerebrovascular Diseases	205	41.2	Cerebrovascular Diseases	14,675	43.6	Chronic Lower Respiratory Diseases	3,098	44.9
6	Alzheimer's Disease	120	28	Alzheimer’s Disease	11,202	34.2	Diabetes	2,088	29.9
7	Diabetes	109	20	Diabetes	8,244	23.6	Alzheimer's Disease	1,751	27.3
8	Kidney Diseases	102	19.6	Influenza and Pneumonia	5,885	17.5	Influenza and Pneumonia	1,148	17.2
9	Influenza and Pneumonia	79	15.8	Kidney Diseases	5,614	16.5	Kidney Diseases	1,140	16.8
10	Suicide	72	12.2	Septicemia	4,500	13.1	Septicemia	1,033	15.1

**Age-adjusted death rate per 100,000 population*

Other Significant Health Needs

Economy

Secondary Data

From the secondary data scoring results, the Economy topic had a score of 1.06 and was the 24th highest scoring health and quality of life topic. High scoring related indicators include: SNAP Certified Stores (1.70), Per Capita Income (1.65) and Renters Spending 30% or More of Household Income on Rent (1.50).

A list of all secondary indicators within this topic area is available in Appendix B.

Primary Data
When participants were asked to select the issue that most impacts the quality of life in Johnston County, economy and poverty was the second highest ranking issue. Both English and Spanish survey respondents identified higher paying employment as the top service in the community needing improvement. 25% of English survey respondents and 16.3% of Spanish survey respondents disagreed or disagreed strongly that there is plenty of economic opportunity in the county.

Focus group participants shared economic stressors such as being able to pay for medical treatment and paying home bills. Many participants discussed that they would like to eat healthier foods but it is cost prohibitive and fast food is both cheaper and easier.

Exercise, Nutrition & Weight

Secondary Data
From the secondary data scoring results, the Exercise, Nutrition & Weight topic had a score of 1.44 and was the 11th highest scoring health and quality of life topic. High scoring related indicators include: Adults 20+ who are Obese (2.65), Workers who Walk to Work (2.45) and Adults 20+ who are Sedentary (2.05).

A list of all secondary indicators within this topic area is available in Appendix B.

Primary Data
58.8% of English survey respondents reported that they exercise for at least 30 minutes during the week. While 42.7% of Spanish survey respondents reported exercising for at least 30 minutes during the week. 51.5% of English survey respondents had been told by a health professional that they were overweight or obese, while 32.9% of Spanish survey respondents had been told the same.

> "More education is needed throughout the community. Education on type of services available, education on health literacy and how to use your health insurance to education on nutrition, healthy eating and exercise."
>
> -Focus Group Participant

Exercise, Nutrition & Weight was discussed in all focus groups. Participants shared their concerns for obesity amongst both young people and adults in the community. There was much discussion regarding challenges with accessing healthy foods in the community. Many participants shared that they struggled with not knowing how to find healthy food options or what to select as healthy food choices when eating away from home. To emphasize this point, when community members were asked about specific topic areas they were interested in learning more about in the community survey nutrition, exercise and managing weight were high frequency responses.

Social Environment

Secondary Data

From the secondary data scoring results, the Exercise, Nutrition & Weight topic had a score of 1.29 and was the 19th highest scoring health and quality of life topic. High scoring related indicators include: Social Associations (2.70) and Mean Travel Time to Work (2.50).

A list of all secondary indicators within this topic area is available in Appendix B.

Primary Data
Social Environment was selected as a top issue effecting the quality of life in Johnston County. 7.6% of respondents selected discrimination or racism as a top issue while 5.5% selected lack of community support as a top issue in the county. 19% of English survey respondents and 15.3% of Spanish survey respondents disagreed or disagreed strongly that there is plenty of help for people during times of need in the community. Services that came up as needing improvement in the community included positive teen activities, counseling/mental health/support groups and culturally appropriate health services.

Focus group participants did not discuss social environment as a need or concern extensively during the sessions. Some participants felt that there could be more activities in the community organized around exercise for all ages.

Substance Abuse

Secondary Data
From the secondary data scoring results, the Exercise, Nutrition & Weight topic had a score of 1.23 and was the 21st highest scoring health and quality of life topic. High scoring related indicators include: Adults who Smoke (1.80) and Adults who Drink Excessively (1.65).

A list of all secondary indicators within this topic area is available in Appendix B.

Primary Data
Community survey participants selected substance abuse as the number one issue impacting quality of life in the community and was selected as a top health behavior people in the community need more information about. 15.7% of English survey respondents and only 3.4% of Spanish survey respondents reported using tobacco products. 76% of English survey respondents and 83.5% of Spanish survey respondents reported zero days when they had more than 4/5 alcoholic drinks on one occasion, 8.1% reported having done so on one occasion for the English survey and 3.5% for the Spanish survey. Reported illegal drug use was low, 96.5% of English survey respondents and 95.2% of Spanish survey respondents had not used any illegal drugs. For those respondents who reported that they had used illegal drugs, most reported using Marijuana. Reported use of prescription drugs that they did not have a prescription for was also very low amongst survey participants (97.9% English survey, 96.2%).

Focus group discussions did not focus heavily on substance abuse, however, participants specifically raised tobacco use and opioids as substance use related issues in their community. Groups that participants believe are adversely impacted by substance use in their community are teens and young adults.

A Closer Look at Highly Impacted Populations

Several subpopulations emerged from the primary and secondary data for their disparities in access to care, risk factors, and health outcomes. This section focuses on these subpopulations and their unique needs.

Disparities by Age, Gender and Race/Ethnicity

Secondary data are further assessed to determine health disparities for race/ethnic, age, or gender groups. Table 21 identifies indicators in which a specific population subgroup differs significantly and negatively from the overall population in Johnston County, with significance determined by non-overlapping confidence intervals.

Table 21. Indicators with Significant Race/Ethnic, Age, or Gender Disparities

Health Indicator	Group(s) Disparately Affected
Mean Travel Time to Work	Male
Workers who Walk to Work	Other
Workers Commuting by Public Transportation	20-24
Lung and Bronchus Cancer Incidence Rate	Male
Adults with Health Insurance	Hispanic or Latino
Workers who Drive Alone to Work	Female, Native Hawaiian or Other Pacific Islander, White, non-Hispanic
People 25+ with a Bachelor's Degree or Higher	65+, Other
Per Capita Income	Asian, Black or African American, Hispanic or Latino, Other, Two or More Races
People 65+ Living Below Poverty Level	Black or African American, Hispanic or Latino, Other
Young Children Living Below Poverty Level	Hispanic or Latino, Other
People 25+ with a High School Degree or Higher	65+, Male, Black or African American, Other
Families Living Below Poverty Level	American Indian or Alaska Native, Black or African American, Hispanic or Latino, Other, Two or More Races
Prostate Cancer Incidence Rate	Black
All Cancer Incidence Rate	Male
Bladder Cancer Incidence Rate	Male
Median Household Income	Black or African American, Hispanic or Latino, Other

Children Living Below Poverty Level	Black or African American, Hispanic or Latino, Other, Two or More Races
People Living Below Poverty Level	12-17, 6-11, <6, , Black or African American, Hispanic or Latino, Other, Two or More Races

See HealthENC.org for indicator values for population subgroups

The list of indicators with significant disparities should be interpreted with caution. Indicators beyond those displayed in Table 21 may also negatively impact a specific subgroup; however, not all data sources provide subpopulation data, so it is not possible to draw conclusions about every indicator used in the secondary data analysis.

Geographic Disparities

Geographic disparities are identified using the SocioNeeds Index®. Zip code 27576, with an index value of 85.8, has the highest socioeconomic need within Johnston County, potentially indicating poorer health outcomes for its residents. See the SocioNeeds Index® for more details, including a map of Johnston County zip codes and index values.

Conclusion

The Community Health Needs Assessment utilized a comprehensive set of secondary data indicators measuring the health and quality of life needs for Johnston County. The assessment was further informed with input from Johnston County residents through a community survey and focus group discussions that included participants from broad interests of the community. The data synthesis process identified nine significant health needs: Access to Health Services, Economy, Exercise, Nutrition & Weight, Heart Disease & Stroke, Other Chronic Diseases, Respiratory Diseases, Social Environment, Substance Abuse and Transportation. The prioritization process identified five focus areas: (1) Access to Health Services, (2) Mental Health/Substance Abuse, (3) Heart Disease & Stroke, (4) Respiratory Disease, and (5) Transportation. Following this process, Johnston County will outline how it plans to address these health needs in its implementation plan.

We hope to incorporate any feedback on this report into the next CHNA process. Please send your feedback and comments to Kimetha Fulwood (Johnston County Public Health Department) at health_dept@johnstonnc.com or Leah Johnson (Johnston Health) at leah.johnson@unchealth.unc.edu.

Appendix A. Impact Since Prior CHNA

Johnston County Public Health Department			
Significant Health Need Identified in Preceding CHNA	**Planned Activities to Address Health Needs Identified in Preceding Implementation Strategy**	**Was Activity Implemented (Yes/No)**	**Results, Impact & Data Sources**
Access to Health Care: Medical and Behavioral Health	Increase the number of HealthNet providers and dental providers providing service to Johnston County residents.	Yes	2015: Project Access Clinics held at Johnston County Public Health Department. During the clinic, HealthNet providers provided medical care to patients.
	Mentor high school and college level students to increase the interest in becoming a Johnston County provider.	Yes	2016: Johnston County Public Health Department continues to support local Physician Assistant and Family Nurse Practitioner Students. Benson Area Medical Center also has two college students participating in the MedServe program. 2016-Johnston County Public Health Department provided opportunities for high school and college students to shadow Public Health Staff during clinic and community activities. 2017: Johnston County Public Health Department continues to support local Physician Assistant and Family Nurse Practitioner Students. In addition, Benson Area Medical Center has two college students participating in the MedServe program. 2017-Johnston County Public Health Department staff participates in career and college days at local middle and high schools.
	Expand access to Marketplace enrollment navigators and Certified Application Counselors in	Yes	10/2015: The Access to Care Action Team met to discuss their interventions, updates and action items. November 1-January 31, 2016 is the Affordable Care Act (ACA) open enrollment period. Expanding access to navigators and dissemination of educational materials for open enrollment

	Johnston County.		for ACA were discussed. 12/2016**:** Two Affordable Care Act Enrollment opportunities were scheduled at the Project Access Medical Clinic. 12/2016**:** Two Affordable Care Act Enrollment opportunities were scheduled at the Johnston County Public Health Department. 12/2016: An Affordable Care Act Enrollment opportunity was scheduled at Benson Area Medical Center. 2017: Johnston County Public Health Department hosted Affordable Care Act Enrollment Events in the spring and fall. 2017: Enrollment navigators are available bimonthly at the Project Access Office in Smithfield to provide assistance with insurance enrollment.
	Establish a community transportation committee to explore options and possible solutions to improve health-related transportation in Johnston County.	Yes	10/2015: The Health-Related Transportation Committee had met with Johnston County Area Transit System, Johnston County Department of Social Services, Commwell Health, Benson Area Medical Center and Wake County Transportation to gain new information regarding barriers. 09/2016**:** The Johnston County Transportation Committee disseminated surveys to study ways to improve transportation in Johnston County. 2017: The Transportation Committee discussed and reviewed a survey analysis. It was determined that an additional survey needed to be completed. Members met with stakeholders to review options for transportation within the county.
	Offer Health Literacy workshops and distribute a local resource guide to members of the Johnston County community to increase their knowledge regarding navigation of their healthcare system.	Yes	10/2015: The Access to Care Action Team reviewed Draft Health Literacy documents were shared and later approved by the group for distribution to the local community. 01/2016**:** Access to Care Team Meeting-During this meeting finalized Health Literacy documents were distributed to meeting members for dissemination. 09/2016**:** The Johnston County Faith Network Collaborative was

			established. This Collaborative has agreed to host a Health Literacy Workshop at Bentonville Disciples of Christ Church in Four Oaks NC. 2017: Bentonville Church of Disciples Church held their first Health Literacy Workshop. The workshop included activities and review of their insurance card. 2017: Commwell Health not-for-profit, Federally Qualified Health Center offered a Health Literacy Workshop. 2017: Delightful Temple Ministries offered Health Literacy information and resources during their Family Festival Career and Health Day Event. 2017: Johnston County Faith Network Collaborative met quarterly and provided guest speakers and health literacy materials as resources for participants to be shared with their congregations.
Obesity and Overweight	Increase the number of early childhood education centers who offer healthy eating and physical activity education programming to improve fruit and vegetable intake and increase exposure to physical activity.	Yes	2017: Micro Original Free Will Baptist Church began and completed the Faithful Families Eating Smart Moving More program. 2017: Four Oaks United Methodist Church began and completed the Faithful Families Eating Smart Moving More program. 2017: Offered nutrition education to the local population at the Smithfield Ham and Yam Festival. 2017: Nutrition education materials were offered to the general public during the Clayton Harvest Festival. 2017: Smithfield Senior Center offered Healthy Eating education to participating seniors. 2017: Brighter Hope Christian Fellowship Church offered nutrition education during their health fair. 2017: Selma Railroad Days and Benson Healthy Harvest offered opportunities to discuss nutrition education to adults and youth.

			2017: Selma, Princeton and Clayton Senior Centers offered Nutrition education to their seniors. 2017: St. John AME Church held an information session on healthy eating and the benefits of being physically active. 2017: Johnston County Farm and Food Council attended the Farm Service Agency NC Agricultural Market Summit and discussed and developed ways to outreach and educate youth and adults about nutrition and farming. 2017: Johnston County Farm and Food Council offered a movie viewing to the local community to gain new interest in supporting local farms.
	Increase the number of opportunities for worksite wellness as it relates to obesity by encouraging healthy weight management or weight loss	Yes	11/2015: A display board was made to announce the Eat Smart Move More Holiday Challenge at the Johnston County Public Health Department. This is on worksite wellness activity that relates to obesity. 11/2015: The Johnston County Public Health Department Staff were invited to participate in the web-based Eat Smart, Move More Holiday Challenge which ended 12/2015. 12/31/15: The Johnston County Eat Smart, Move More Holiday Challenge ranked 10th in the state with 123 participants. 10/2016: Town of Clayton offered a hypertension focused worksite wellness program in collaboration with Obesity, Diabetes, Heart Disease, Stroke Prevention Grants Team. 10/2016: The Johnston County Public Health Department launched the Employee Wellness program to include monthly wellness activities and challenges to coincide with health observances. Future components will include the Bike Share Program and the Healthy Snack Station. 10/2016: Johnston County Wellness Committee continues to partner with other county government agencies to implement worksite wellness. 12/2016: Town of Smithfield and Johnston UNC Healthcare has met with

			the Obesity, Diabetes, Heart Disease, Stroke Prevention Grants Team to discuss worksite wellness initiatives for 2017. 2017: Cooperative Extension agent held an information session for Local Government staff about how to read food labels and making healthy food choices. 2017: Seven worksites in Johnston County are now participating in worksite wellness programs and offering healthy food choices and on-site options to increase physical activity. 2017: Johnston County Government offers programs to employees to promote healthy eating and increased physical activity. 2017: Johnston Health completed ScoreCard in 2017 and participated with JOCO Health Department in the National Walk to Work Day event in April. Enhanced walking trail for employees at Johnston Health through ODHDSP funds and provided environmental supports for physical activity within the workplace. 2017: Partnered with Liberty Commons in Benson, NC to work on employee wellness initiatives, to expand upon the Liberty Healthcare Corporate Employee Wellness Initiative on a more localized level. ODHDSP Worksite Wellness Coordinator in process of providing agency signage and walking route maps for walking routes around the facilities, as well as health education resources employer can use for employee wellness challenges. 2017: Johnston Community College completed the CDC ScoreCard in April 2017. ODHDSP Worksite Wellness Coordinator worked with the JCC HR Department and wellness committee to enhance the walking routes around the campus through signage and benches, as well as provided additional environmental supports for physical activity including desk pedals and resistance bands, and provided a water bottle refill station for the campus to increase healthier beverage intake among staff and students. 2017: Continue to partner with Town of Smithfield on employee wellness and enhancing their current programs. Provided town with a bike repair

			station for their green-way to offer equipment needed for any bike repairs on the local greenway in Smithfield, available for community use. 2017: Began partnership with South Smithfield Elementary School through connection made through the ARTS grant to assist in creation of an employee wellness program. Partnership established in December 2017, efforts on-going. ODHDSP staff are in process of analyzing employee interest surveys to help with planning and creating a wellness program for staff. 2017: Partnership continues with Town of Clayton, assisting with adjusting their employee wellness annual action plan to focus more efforts from high blood pressure to physical activity. 2018: Established a Walk with the Doc program hosted monthly with Dr. Pearson and open to all county agencies and expanded to community. The monthly walks include a health topic discussion before the physical activity.
	Increase the number of local food pantries who offer nutrition education and food demonstrations to improve self-efficacy in choosing and preparing foods that are healthier food choices.	Yes	11/2015: Johnston County Food Council Taskforce is a new initiative that is working to create accessible local food system options to individuals and families in Johnston County. 12/2015: Johnston County Food Council Taskforce narrowed down specific objectives based on current stakeholders' interests. 3/2016**:** Food demonstrations at West Johnston High School Food Pantry and Clayton Area Ministries Pantry of Kale, Apple and Banana smoothie including distribution of recipe cards and nutrition education. 3/2016: Food demonstrations at West Johnston High School Food Pantry and Clayton Area Ministries Pantry of Kale, Apple and Banana smoothie including distribution of recipe cards and nutrition education. 04/2016: Fruit Salad and Black Bean/Corn Salsa food demonstration. Food demonstrations utilized foods available in the pantries of West Johnston High School Food Pantry and Clayton Area Ministries Food Pantry. 06/2016: Quick Salsa and Easy Fruit Salad food demonstration. Education

			and recipe cards were provided to participants of the food pantry. 09/2016: Pizza Quesadilla and Peanut Butter Cereal Bars food demonstration. The education team provided recipes and ingredients used in the tasting were available for patrons to take with them.
Nutrition and Physical Activity	To implement a walking campaign: Walk More, Connect More	Yes	2015: Billboards and Social Media were used to implement the walking campaign. The billboards were located at: • I-95 .4 miles S of Exit 93 • I-95 .5 miles S of Benson exit • US 70 .6 miles E of SR 2309 • Hwy 70 .25 miles W of Wilson Mills Road 2016: A Walk More Connect More social media campaign throughout the month of January 2016 was implemented. The posts appeared on the Transforming Health NC Facebook and Twitter accounts.
	Increase the number of elementary schools participating in Active Routes to Schools (ARTS) Activities	Yes	02/2015: Planning meeting for the 2015 Walk for Health/Bike Rodeo Community. 04/2015: County-Wide Walk for Health/Bike Rodeo Event at East Clayton Community Park. 05/2015: East Clayton Elementary, Four Oaks Elementary and Powhatan Elementary Schools Bike to School Events. 07/2015: Active Routes to School Event at a Clayton Summer Camp which included a Bike Rodeo. 02/2016: Planning meeting for the 2016 Safe Kids Day event, to include the County-Wide Walk for Health/Bike Rodeo. 04/2016: County-Wide Safe Kids Day; Walk for Health/Bike Rodeo Event at East Clayton Community Park. 05/2016: East Clayton Elementary, South Smithfield Elementary, Four Oaks Elementary, Powhatan Elementary Schools participated in Bike/Walk to School Events.

			09/2016: Riverwood Elementary participated in the Let's Go NC! Curriculum. 10/2016: Riverwood Elementary, Polenta Elementary, East Clayton and Powhatan Elementary Schools participated in Walk to School Day Events. 2017: Active Routes to Schools (ARTS) participated in the 2017 Health and Safety Fair to promote and share information regarding physical activity. Seven Bike to School Day and six Walk to School Day Events were held in Johnston County.
	Increase access to healthy foods via school gardens	Yes	03/2015: East Clayton Elementary School garden activities such as planting vegetables in garden and nutrition education offered during the salad celebration. 05/2016: Health Education Team met with Clayton Middle School staff to discuss options for school garden support and education. 09/2016: Health Education Team met with additional Clayton Middle School staff and toured the onsite school garden. 09/2016: Johnston County Master Gardener provided education to 8th grade students regarding soil testing, composting and pests at Clayton Middle School.

Johnston Health			
Significant Health Need Identified in Preceding CHNA	**Planned Activities to Address Health Needs Identified in Preceding Implementation Strategy**	**Was Activity Implemented (Yes/No)**	**Results, Impact & Data Sources**
Affordability/ Accessibility	Recruitment of sub-specialists in several areas, including urology and additional neurology	Yes	During FY16, Johnston Health recruited 33 specialists in 12 different areas. During FY17, Johnston Health recruited 45 specialists in 10 different areas. During FY18, Johnston Health recruited 68 specialists in 12 different areas. During the FY16-FY18 period, 2 of the specialists recruited were in urology and 2 in neurology.
	Growing GI program in the outpatient setting	Yes	Our partnership with Rex Digestive Health Care allowed us to recruit 2 Physician Assistants in 2018 to work in the Smithfield GI practice. The addition of these PA's allowed for increased access for a clinic appointment. The partnership also allowed the opportunity to open a second location, providing access in Clayton.
	Adding a stand-alone urgent care clinic in the Clayton community, helping to reduce cost and speed up services for non-emergent needs	Yes	In partnership with UNCPN, UNC Urgent Care at Clayton opened for business in April of 2017. This urgent care serves the non-emergent needs of the community seven days a week.
	Telepsychiatry services for all ages, helping provide faster access for mental health patients	Yes	Telepsychiatry launched in the Clayton campus Emergency Department April of 2016. Since its inception, 34 patients of varying ages received treatment utilizing this service.
	Conversion to EPIC EMR to help patients move more smoothly through the system		Johnston Health launched EPIC in both its hospitals May of 2016. The conversion has led to improved care coordination throughout the entire UNC Health Care system and amongst other health systems utilizing

			EPIC. Frequent upgrades ensure that we are constantly providing the best care and information to our patients.
Cancer	3D mammography	Yes	Johnston Health launched its 3D mammography service in both its Clayton and Smithfield location in FY16. During FY16, we provided 3D mammograms to 3,719 patients with 47 breast cancer cases detected as a result. (MQSA tracking requirements followed) During FY17, we provided 3D mammograms to 6,442 patients with 61 breast cancer cases detected as a result. (MQSA tracking requirements followed) During FY18, we provided 3D mammograms to 4,537 patients. As of the date of this report, FY18 data on breast cancer cases is unavailable. Data to be released in 1st quarter FY19.
	Participation in medical trials for cancer treatments	Yes	• 2016 = 93 patients enrolled / 27% of analytic cancer patients • 2017 = 189 patients enrolled / 42% of analytic cancer patients • 2018 = 233 patients enrolled / percentage unavailable as our 2018 cases are still being abstracted by our CTR
	Community screenings and education programs	Yes	Johnston Health has provided numerous educational events and programs from 2016-2018. Examples include: Ladies Night Out, a community event that educates the women of Johnston County about breast cancer and encourages regular mammograms and self-breast exams. • October 2016 = Appx 200 attendees • October 2017 = Appx 300 attendees • October 2018 = Appx 350 attendees Food for Life: Cancer Project, a free educational series that promotes cancer prevention and survival through a better understanding of cancer causes, particularly the link between nutrition and cancer. • May 2016 = 16 participants Free Prostate Cancer Screening Events • September 2016 = 46 participants, of those, 4 participants had high PSA levels and were contacted for follow-up appointments

			• September 2017 = 22 participants, of those, 3 participants had high PSA levels and were contacted for follow-up appointments • September 2018 = 29 participants, of those, 5 participants had high PSA levels and were contacted for follow-up appointments Free Colorectal Cancer Screening Kits (Hemosure iFOBTest)– These kits were disseminated in partnership with the Johnston County Public Health Department. Kits were purchased and tested by Johnston Health. • October 2018 = 150 kits were purchased and disseminated to the community. 33 kits were returned to Johnston Health for testing, of those, 8 had positive FIT tests. Our Nurse Navigator successfully referred all patients to a PCP for treatment plan & follow-up care
	Obtained ACOS Commission on Cancer accreditation, a measure of quality and comprehensive care	Yes	• The Cancer Committee was formed in April 2013 • First continuous accreditation Date: 6/4/2015 • Accreditation Survey Date: 5/17/2018 • Date of next survey: 6/1/2021 • Between the years 2016 (487 analytic cancer cases) and 2017 (562 analytic cancer cases) the category of our cancer program converted from a Community Cancer Program (CCP) to a Comprehensive Community Cancer Program (CCCP); meaning that Johnston Health is now accessioning 500 or more newly diagnosed cancer cases (Analytic cases) each year
	Recruited a cancer patient navigator to help patients through the system	Yes	• Oncology Patient Navigator hired with start date of 2/9/2015 • Average number of patients navigated per year: 2016-2018 = 160/yr. and the volume is continuously increasing.
Mental Health/ Suicide	Expand suicide risk exams to outpatients	No	As of the date of this report, suicide risk exams have not been expanded to all outpatients. Screening assessments are solely provided for behavioral health issues within our own emergency departments.
	Explore opportunities to add additional services in the mental health arena	Partial	Johnston Health has requested and was awarded 6 additional beds to serve the adult population. These beds will be utilized to serve individuals that would otherwise be served by the State Hospital system. We are currently awaiting CON (certificate of need) approval from the state.
Coronary Heart Disease	Maintain ED chest pain center certifications for both campuses	Yes	Johnston Health Smithfield and Johnston Health Clayton both received full accreditation as Chest Pain Centers on April 15, 2013. In 2016, both facilities were re-accredited for three more years as Chest Pain Centers, and we are beginning the process for re-accreditation again in April 2019.

	Pursue congestive heart failure certification	No	We have not started working on congestive heart failure certification yet because we are currently focusing on becoming an accredited stroke facility before pursuing congestive heart failure.
	Potential addition of a second cath lab in the community	No	Although volumes are increasing, we have not reached the trigger for CON (certificate of need) approval.
	Expand cardiopulmonary rehab program	Yes	The Cardiopulmonary Rehab department opened its doors in our new location on the corner of Bright Leaf Blvd. and Hospital Road on Sept. 11, 2017. In our newly expanded space, we have been able to grow our class sizes from 15 to 20 patients per class thus allowing us to serve more patients from our community.
Diabetes	Provide education, prevention, and screenings to the community	Yes	Johnston Health launched an initiative in March of 2017 to reach 20,000 people in 12 months with the purpose if increasing overall awareness, offering free screenings, and educating the community on prevention. Examples of our efforts include: • Encouraging participation in the American Diabetes Association Diabetes Risk Test online • Offering complimentary glucose screenings at festivals, health fairs, churches, and places of employment across the county • Promoting healthy lifestyle tips to faculty, staff, patients and the public (social channels, newsletters, collateral at businesses/organizations/schools, etc.) • Providing glucometers, test strips, and lancets to in need patients through our partnership with the Johnston County Community Paramedic program • Spearheading a diabetes support group that tackles specific health-related topics each meeting • Building out our diabetes education program, which has a variety of activities to further education and encourage a healthy lifestyle, including but not limited to, our diabetes hotline where anyone can call and speak to one of our certified diabetes educators • Educating via Diabetes Presentations at Clayton Health & Wellness Expo as well as surrounding Community & Senior Service Centers

Physicians	Develop Clinically Integrated Network (UNC Health Alliance) to help coordinate care across the system	Yes	UNC Health Alliance brought the CIN to Johnston County in 2017. Private practices, both specialty and primary care opted to join the CIN along with UNC practices in Johnston County. 2019 JH collaborated with UNC Health Alliance Blue Premier to ensure quality care, patient satisfaction and decrease health care cost.
	Conducting medical staff development plan to better align physician growth and succession planning	Yes	2016-2021 Currently working from this plan developed in 2016
	Recruiting Vice President of Medical Affairs to help improve quality and integration, helping the patient receive better, safer, and faster care	Yes	Peter Charvat, MD, MBA (VPMA/CMO) was recruited to address this need on August 28, 2016.

Appendix B. Secondary Data Scoring Overview

Data scoring consists of three stages, which are summarized in Figure 54:

Comparison Score

For each indicator, Johnston County is assigned up to seven comparison scores based on its comparison to other communities, whether health targets have been met, and the trend of the indicator value over time. Comparison scores range from 0-3, where 0 indicates the best outcome and 3 indicates the worst outcome (Figure 55).

Indicator Score

Indicator scores are calculated as a weighted average of comparison scores. Indicator scores range from 0-3, where 0 indicates the best outcome and 3 indicates the worst outcome (Figure 55).

Topic Score

Indicators are then categorized into topic areas. Topic scores are calculated by averaging all relevant indicator scores, with indicators equally weighted. Topic scores range from 0-3, where 0 indicates the best outcome and 3 indicates the worst outcome (Figure 55). Indicators may be categorized into more than one topic area.

Figure 54. Secondary Data Scoring

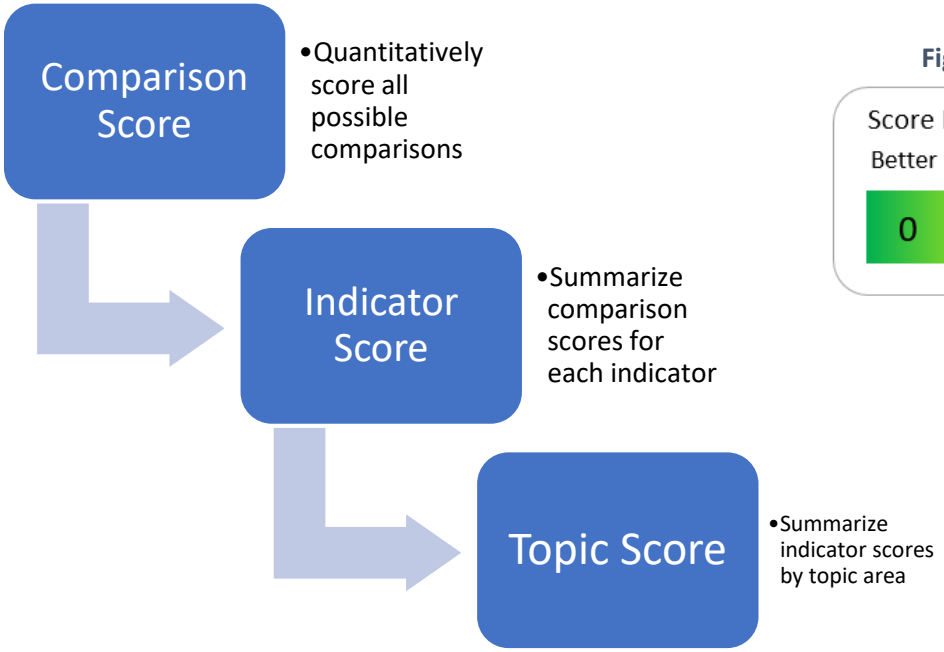
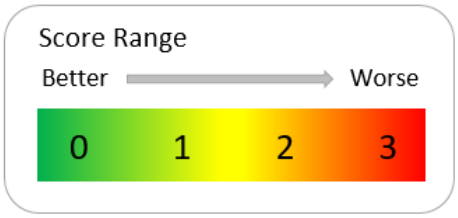


Figure 55. Score Range



Comparison Scores

Figure 56. Comparisons used in Secondary

Up to seven comparison scores were used to assess the status of Johnston County. The possible comparisons are shown in Figure 56 and include a comparison of Johnston County to North Carolina counties, all U.S. counties, the North Carolina state value, the U.S. value, Healthy People 2020 targets, Healthy North Carolina 2020 targets, and the trend over time. Availability of each type of comparison varies by indicator and is dependent upon the data source, comparability with data collected for other communities, and changes in methodology over time. The determination of comparison scores for each type of comparison is discussed in more detail below.

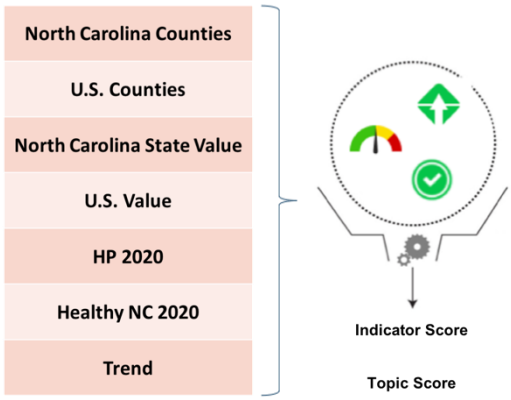


Figure 57. Compare to Distribution Indicator

Comparison to a Distribution of North Carolina Counties and U.S. Counties

For ease of interpretation and analysis, indicator data on HealthENC.org is visually represented as a green-yellow-red gauge showing how Johnston County is faring against a distribution of counties in North Carolina or the U.S. (Figure 57).

A distribution is created by taking all county values within the state or nation, ordering them from low to high, and dividing them into four equally sized groups based on their order (Figure 58). The comparison score is determined by how Johnston County falls within these four groups or quartiles.

Figure 58. Distribution of County Values

Figure 59. Comparison to Single Value

Comparison to North Carolina Value and U.S. Value

As shown in Figure 59, the diamond represents how Johnston County compares to the North Carolina state value and the national value. When comparing to a single value, the comparison score is determined by how much better or worse the county value is relative to the comparison value.

Comparison to Healthy People 2020 and Healthy North Carolina 2020 Targets

Figure 60. Comparison to Target Value

As shown in Figure 60, the circle represents how Johnston County compares to a target value. Two target values are taken into consideration for this analysis: Healthy People 2020 and Healthy North Carolina 2020. Healthy People 2020[2] goals are national objectives for improving the health of the nation set by the Department of Health and Human Services' (DHHS) Healthy People Initiative. Healthy North Carolina 2020[3] objectives provide a common set of health indicators that the state can work to improve. The North Carolina Institute of Medicine, in collaboration with the Governor's Task Force for Healthy Carolinians; the Division of Public Health, North Carolina Department of Health and Human Services (NC DHHS); the Office of Healthy Carolinians and Health Education, NC DHHS; and the State Center for Health Statistics, NC DHHS, helped lead the development of the Healthy NC 2020 objectives. When comparing to a target, the comparison score is determined by whether the target is met or unmet, and the percent difference between the indicator value and the target value.

Trend Over Time

As shown in Figure 61, the square represents the measured trend. The Mann-Kendall statistical test for trend is used to assess whether the value for Johnston County is increasing or decreasing over time and whether the trend is statistically significant. The trend comparison uses the four most recent comparable values for the county, and statistical significance is determined at the 90% confidence level. For each indicator with values available for four time periods, a comparison score is determined by the trend's direction and its statistical significance.

Figure 61. Trend Over Time

Missing Values

Indicator scores are calculated using the comparison scores, availability of which depends on the data source. If an indicator does not have data for a specific comparison type that is included for indicator score calculations, the missing comparison is substituted with a neutral score. When information is unknown due to lack of comparable data, the neutral value assumes that the missing comparison score is neither good nor bad and does not impact the indicator's weighted average.

Indicator Scoring

Indicator scores are calculated as a weighted average of all included comparison scores. If none of the included comparison types are possible for an indicator, no score is calculated, and the indicator is excluded from the data scoring results.

[2] For more information on Healthy People 2020, see https://www.healthypeople.gov/

[3] For more Information on Healthy North Carolina 2020, see: https://publichealth.nc.gov/hnc2020/

Topic Scoring

Indicator scores are averaged by topic area to calculate topic scores. Each indicator may be included in up to three topic areas if appropriate. Resulting scores range from 0-3, where a higher score indicates a greater level of need as evidenced by the data. A topic score is only calculated if it includes at least three indicators.

Age, Gender and Race/Ethnicity Disparities

When a given indicator has data available for population subgroups – such as age, gender and race/ethnicity – and values for these subgroups include confidence intervals, we are able to determine if there is a significant difference between the subgroup's value and the overall value. A significant difference is defined as two values with non-overlapping confidence intervals. Confidence intervals are not available for all indicators. In these cases, disparities cannot be determined because there is not enough data to conclude whether two values are significantly different from each other.

Topic Scoring Table

Table 22 shows the Topic Scores for Johnston County, with higher scores indicating a higher need.

Table 22. Topic Scores for Johnston County

Health and Quality of Life Topics	Score
Heart Disease & Stroke	**2.03**
Access to Health Services	**1.99**
Respiratory Diseases	**1.98**
Other Chronic Diseases	**1.92**
Transportation	**1.89**
Older Adults & Aging	**1.77**
Environmental & Occupational Health	**1.71**
Mental Health & Mental Disorders	**1.69**
Diabetes	**1.57**
County Health Rankings	**1.46**
Exercise, Nutrition, & Weight	**1.44**
Wellness & Lifestyle	**1.43**
Education	**1.41**
Cancer	**1.36**
Children's Health	**1.34**
Immunizations & Infectious Diseases	**1.34**
Mortality Data	**1.33**
Environment	**1.32**
Social Environment	**1.29**
Women's Health	**1.23**
Substance Abuse	**1.23**
Men's Health	**1.20**
Maternal, Fetal & Infant Health	**1.12**
Economy	**1.06**
Prevention & Safety	**1.04**
Public Safety	**1.00**

Indicator Scoring Table

Table 23 (spanning multiple pages) presents the indicator data used in the quantitative data analysis. Indicators are grouped into topic areas and sorted by indicator score, with higher scores indicating a higher need. Johnston County values are displayed alongside various comparison values and the period of measurement. Additional data can be found on HealthENC.org.

Table 23. Indicator Scores by Topic Area

SCORE	ACCESS TO HEALTH SERVICES	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.30	Dentist Rate	2016	dentists/ 100,000 population	22.5	54.7	67.4				5
2.30	Preventable Hospital Stays: Medicare Population	2014	discharges/ 1,000 Medicare enrollees	72.2	49	49.9				20
2.30	Primary Care Provider Rate	2015	providers/ 100,000 population	30.2	70.6	75.5				5
2.10	Mental Health Provider Rate	2017	providers/ 100,000 population	86.2	215.5	214.3				5
1.93	Adults with Health Insurance	2016	percent	82.7	84.9	88	100		Hispanic or Latino	1
1.93	Children with Health Insurance	2016	percent	94	95.5	95.5	100			1
1.80	Non-Physician Primary Care Provider Rate	2017	providers/ 100,000 population	60.6	102.5	81.2				5
1.73	Clinical Care Ranking	2018	ranking	79						5
1.48	Persons with Health Insurance	2016	percent	87.1	87.8		100	92		19

SCORE	CANCER	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.35	Age-Adjusted Death Rate due to Pancreatic Cancer	2010-2014	deaths/ 100,000 population	12.2	10.8	10.9				8
2.28	Age-Adjusted Death Rate due to Oral Cancer	2010-2014	deaths/ 100,000 population	3.1	2.6	2.5	2.3			8
2.28	Cervical Cancer Incidence Rate	2010-2014	cases/ 100,000 females	9.6	7.2	7.5	7.3			8
2.25	Age-Adjusted Death Rate due to Lung Cancer	2010-2014	deaths/ 100,000 population	56.4	50.7	44.7	45.5			8
1.95	Age-Adjusted Death Rate due to Cancer	2010-2014	deaths/ 100,000 population	182.3	172	166.1	161.4			8

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

1.95	Lung and Bronchus Cancer Incidence Rate	2010-2014	cases/ 100,000 population	76.1	70	61.2			Male	8
1.85	Age-Adjusted Death Rate due to Colorectal Cancer	2010-2014	deaths/ 100,000 population	15.1	14.1	14.8	14.5	10.1		8
1.45	Cancer: Medicare Population	2015	percent	7.4	7.7	7.8				4
1.33	Childhood Cancer Incidence Rate	2010-2014	cases/ 100,000 population 0-19	17	16	17.6				8
1.30	Age-Adjusted Death Rate due to Breast Cancer	2010-2014	deaths/ 100,000 females	21.5	21.6	21.2	20.7			8
1.30	Pancreatic Cancer Incidence Rate	2010-2014	cases/ 100,000 population	11.5	12	12.5				8
1.15	Mammography Screening: Medicare Population	2014	percent	68.6	67.9	63.1				20
1.05	Prostate Cancer Incidence Rate	2010-2014	cases/ 100,000 males	114.4	125	114.8			Black	8
0.95	Age-Adjusted Death Rate due to Prostate Cancer	2010-2014	deaths/ 100,000 males	19.5	21.6	20.1	21.8			8
0.95	All Cancer Incidence Rate	2010-2014	cases/ 100,000 population	430.4	457	443.6			Male	8
0.90	Bladder Cancer Incidence Rate	2010-2014	cases/ 100,000 population	19.6	20.1	20.5			Male	8
0.90	Breast Cancer Incidence Rate	2010-2014	cases/ 100,000 females	114.3	129.4	123.5				8
0.90	Liver and Bile Duct Cancer Incidence Rate	2010-2014	cases/ 100,000 population	7.1	7.7	7.8				8
0.90	Oral Cavity and Pharynx Cancer Incidence Rate	2010-2014	cases/ 100,000 population	11.5	12.2	11.5				8
0.30	Colorectal Cancer Incidence Rate	2010-2014	cases/ 100,000 population	35.1	37.7	39.8	39.9			8
0.30	Ovarian Cancer Incidence Rate	2010-2014	cases/ 100,000 females	8.7	10.9	11.4				8

SCORE	CHILDREN'S HEALTH	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.93	Children with Health Insurance	2016	percent	94	95.5	95.5	100			1
1.33	Childhood Cancer Incidence Rate	2010-2014	cases/ 100,000 population 0-19	17	16	17.6				8
1.20	Children with Low Access to a Grocery Store	2015	percent	1.5						23
0.90	Child Food Insecurity Rate	2016	percent	19.4	20.9	17.9				6

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

SCORE	COUNTY HEALTH RANKINGS	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.73	Clinical Care Ranking	2018	ranking	79						5
1.73	Physical Environment Ranking	2018	ranking	91						5
1.43	Health Behaviors Ranking	2018	ranking	49						5
1.28	Morbidity Ranking	2018	ranking	20						5
1.28	Mortality Ranking	2018	ranking	16						5
1.28	Social and Economic Factors Ranking	2018	ranking	16						5

SCORE	DIABETES	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.35	Adults 20+ with Diabetes	2014	percent	13.1	11.1	10				5
2.15	Diabetes: Medicare Population	2015	percent	32.7	28.4	26.5				4
1.03	Age-Adjusted Death Rate due to Diabetes	2012-2016	deaths/ 100,000 population	19.2	23	21.1				18
0.75	Diabetic Monitoring: Medicare Population	2014	percent	90.1	88.8	85.2				20

SCORE	ECONOMY	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.70	SNAP Certified Stores	2016	stores/ 1,000 population	0.7						23
1.65	Per Capita Income	2012-2016	dollars	23171	26779	29829			Asian, Black or African American, Hispanic or Latino, Other, Two or More Races	1
1.50	Renters Spending 30% or More of Household Income on Rent	2012-2016	percent	45.8	49.4	47.3		36.1		1
1.43	Median Housing Unit Value	2012-2016	dollars	147500	157100	184700				1
1.40	People 65+ Living Below Poverty Level	2012-2016	percent	9.7	9.7	9.3			Black or African American, Hispanic or Latino, Other	1
1.40	Young Children Living Below Poverty Level	2012-2016	percent	25.4	27.3	23.6			Hispanic or Latino, Other	1

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

1.38	Median Household Gross Rent	2012-2016	dollars	787	816	949			1
1.30	Severe Housing Problems	2010-2014	percent	14.9	16.6	18.8			5
1.28	Social and Economic Factors Ranking	2018	ranking	16					5
1.25	Households with Supplemental Security Income	2012-2016	percent	5.2	5	5.4			1
1.23	Median Monthly Owner Costs for Households without a Mortgage	2012-2016	dollars	367	376	462			1
1.20	Population 16+ in Civilian Labor Force	2012-2016	percent	64.7	61.5	63.1			1
1.05	Families Living Below Poverty Level	2012-2016	percent	11.4	12.4	11		American Indian or Alaska Native, Black or African American, Hispanic or Latino, Other, Two or More Races	1
1.05	Low-Income and Low Access to a Grocery Store	2015	percent	1.5					23
1.00	Female Population 16+ in Civilian Labor Force	2012-2016	percent	59.8	57.4	58.3			1
1.00	Students Eligible for the Free Lunch Program	2015-2016	percent	39.5	52.6	42.6			9
0.98	Mortgaged Owners Median Monthly Household Costs	2012-2016	dollars	1226	1243	1491			1
0.90	Child Food Insecurity Rate	2016	percent	19.4	20.9	17.9			6
0.90	Median Household Income	2012-2016	dollars	51980	48256	55322		Black or African American, Hispanic or Latino, Other	1
0.90	People Living 200% Above Poverty Level	2012-2016	percent	64.7	62.3	66.4			1
0.83	Persons with Disability Living in Poverty (5-year)	2012-2016	percent	23.5	29	27.6			1
0.75	Children Living Below Poverty Level	2012-2016	percent	21.4	23.9	21.2		Black or African American, Hispanic or Latino, Other, Two or More Races	1
0.75	People Living Below Poverty Level	2012-2016	percent	14.6	16.8	15.1	12.5	12-17, 6-11, <6, , Black or African American, Hispanic or Latino, Other,	1

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

									Two or More Races	
0.75	Unemployed Workers in Civilian Labor Force	April 2018	percent	3.4	3.7	3.7				21
0.60	Food Insecurity Rate	2016	percent	12.2	15.4	12.9				6
0.60	Homeownership	2012-2016	percent	64.4	55.5	55.9				1
0.60	Total Employment Change	2014-2015	percent	6.5	3.1	2.5				22
0.30	Households with Cash Public Assistance Income	2012-2016	percent	1.5	1.9	2.7				1

SCORE	EDUCATION	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.70	People 25+ with a Bachelor's Degree or Higher	2012-2016	percent	21.2	29	30.3			65+, Other	1
1.65	4th Grade Students Proficient in Reading	2016-2017	percent	57.2	57.7					14
1.45	8th Grade Students Proficient in Reading	2016-2017	percent	57.1	53.7					14
1.45	Student-to-Teacher Ratio	2015-2016	students/ teacher	15.6	15.6	17.7				9
1.40	8th Grade Students Proficient in Math	2016-2017	percent	45.6	45.8					14
1.35	4th Grade Students Proficient in Math	2016-2017	percent	56.8	58.6					14
1.35	People 25+ with a High School Degree or Higher	2012-2016	percent	85	86.3	87			65+, Male, Black or African American, Other	1
0.90	High School Graduation	2016-2017	percent	92.2	86.5		87	94.6		14

SCORE	ENVIRONMENT	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.18	Drinking Water Violations	FY 2013-14	percent	6	4			5		5
1.80	Farmers Market Density	2016	markets/ 1,000 population	0.02						23
1.73	Physical Environment Ranking	2018	ranking	91						5
1.70	SNAP Certified Stores	2016	stores/ 1,000 population	0.7						23
1.65	Access to Exercise Opportunities	2018	percent	68.6	76.1	83.1				5

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

1.65	Grocery Store Density	2014	stores/ 1,000 population	0.2						23
1.60	PBT Released	2016	pounds	144						24
1.43	Annual Particle Pollution	2014-2016		B						2
1.40	Fast Food Restaurant Density	2014	restaurants/ 1,000 population	0.6						23
1.30	Severe Housing Problems	2010-2014	percent	14.9	16.6	18.8				5
1.20	Children with Low Access to a Grocery Store	2015	percent	1.5						23
1.20	Households with No Car and Low Access to a Grocery Store	2015	percent	2.6						23
1.20	Recreation and Fitness Facilities	2014	facilities/ 1,000 population	0.1						23
1.18	Annual Ozone Air Quality	2014-2016		A						2
1.05	Low-Income and Low Access to a Grocery Store	2015	percent	1.5						23
1.05	People 65+ with Low Access to a Grocery Store	2015	percent	0.5						23
0.70	Houses Built Prior to 1950	2012-2016	percent	7.7	9.1	18.2				1
0.70	Liquor Store Density	2015	stores/ 100,000 population	3.8	5.8	10.5				22
0.45	Food Environment Index	2018		8.3	6.4	7.7				5

SCORE	ENVIRONMENTAL & OCCUPATIONAL HEALTH	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.50	Asthma: Medicare Population	2015	percent	9.8	8.4	8.2				4
1.73	Physical Environment Ranking	2018	ranking	91						5
0.90	Age-Adjusted Hospitalization Rate due to Asthma	2014	hospitalizations/ 10,000 population	67.2	90.9					11

SCORE	EXERCISE, NUTRITION, & WEIGHT	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.65	Adults 20+ who are Obese	2014	percent	35.2	29.6	28	30.5			5
2.45	Workers who Walk to Work	2012-2016	percent	0.6	1.8	2.8	3.1		Other	1
2.05	Adults 20+ who are Sedentary	2014	percent	28.1	24.3	23	32.6			5

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

1.80	Farmers Market Density	2016	markets/ 1,000 population	0.02						23
1.70	SNAP Certified Stores	2016	stores/ 1,000 population	0.7						23
1.65	Access to Exercise Opportunities	2018	percent	68.6	76.1	83.1				5
1.65	Grocery Store Density	2014	stores/ 1,000 population	0.2						23
1.43	Health Behaviors Ranking	2018	ranking	49						5
1.40	Fast Food Restaurant Density	2014	restaurants/ 1,000 population	0.6						23
1.20	Children with Low Access to a Grocery Store	2015	percent	1.5						23
1.20	Households with No Car and Low Access to a Grocery Store	2015	percent	2.6						23
1.20	Recreation and Fitness Facilities	2014	facilities/ 1,000 population	0.1						23
1.05	Low-Income and Low Access to a Grocery Store	2015	percent	1.5						23
1.05	People 65+ with Low Access to a Grocery Store	2015	percent	0.5						23
0.90	Child Food Insecurity Rate	2016	percent	19.4	20.9	17.9				6
0.60	Food Insecurity Rate	2016	percent	12.2	15.4	12.9				6
0.45	Food Environment Index	2018		8.3	6.4	7.7				5

SCORE	HEART DISEASE & STROKE	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.50	Hyperlipidemia: Medicare Population	2015	percent	51.6	46.3	44.6				4
2.30	Ischemic Heart Disease: Medicare Population	2015	percent	35.7	24	26.5				4
2.00	Hypertension: Medicare Population	2015	percent	62.6	58	55				4
1.95	Atrial Fibrillation: Medicare Population	2015	percent	8	7.7	8.1				4
1.95	Heart Failure: Medicare Population	2015	percent	15.2	12.5	13.5				4
1.90	Stroke: Medicare Population	2015	percent	4.1	3.9	4				4
1.83	Age-Adjusted Death Rate due to Cerebrovascular Disease (Stroke)	2012-2016	deaths/ 100,000 population	41.9	43.1	36.9	34.8			18
1.80	Age-Adjusted Death Rate due to Heart Disease	2012-2016	deaths/ 100,000 population	199	161.3			161.5		18

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

SCORE	IMMUNIZATIONS & INFECTIOUS DISEASES	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.43	Tuberculosis Incidence Rate	2014	cases/ 100,000 population	3.4	2	3	1			12
1.45	AIDS Diagnosis Rate	2016	cases/ 100,000 population	5.1	7					12
1.45	Syphilis Incidence Rate	2016	cases/ 100,000 population	5.4	10.8	8.7				10
1.35	HIV Diagnosis Rate	2014-2016	cases/ 100,000 population	9.3	16.1			22.2		12
1.33	Age-Adjusted Death Rate due to Influenza and Pneumonia	2012-2016	deaths/ 100,000 population	15.9	17.8	14.8		13.5		18
1.08	Chlamydia Incidence Rate	2016	cases/ 100,000 population	379.7	572.4	497.3				12
1.08	Gonorrhea Incidence Rate	2016	cases/ 100,000 population	116.5	194.4	145.8				12
0.53	Age-Adjusted Death Rate due to HIV	2012-2016	deaths/ 100,000 population	1.3	2.2	2	3.3			18

SCORE	MATERNAL, FETAL & INFANT HEALTH	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.48	Preterm Births	2016	percent	10.2	10.4	9.8	9.4			17
1.28	Babies with Low Birth Weight	2012-2016	percent	8.1	9	8.1	7.8			17
1.13	Infant Mortality Rate	2011-2015	deaths/ 1,000 live births	6.6	7.2	6	6	6.3		18
0.90	Teen Pregnancy Rate	2012-2016	pregnancies/ 1,000 females aged 15-17	15.2	15.7		36.2			18
0.83	Babies with Very Low Birth Weight	2012-2016	percent	1.4	1.7	1.4	1.4			17

SCORE	MEN'S HEALTH	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.60	Life Expectancy for Males	2014	years	75.4	75.4	76.7		79.5		7
1.05	Prostate Cancer Incidence Rate	2010-2014	cases/ 100,000 males	114.4	125	114.8			Black	8
0.95	Age-Adjusted Death Rate due to Prostate Cancer	2010-2014	deaths/ 100,000 males	19.5	21.6	20.1	21.8			8

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

SCORE	MENTAL HEALTH & MENTAL DISORDERS	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.35	Depression: Medicare Population	2015	percent	19.1	17.5	16.7				4
2.10	Mental Health Provider Rate	2017	providers/ 100,000 population	86.2	215.5	214.3				5
1.80	Alzheimer's Disease or Dementia: Medicare Population	2015	percent	9.7	9.8	9.9				4
1.65	Poor Mental Health: Average Number of Days	2016	days	4	3.9	3.8		2.8		5
1.58	Age-Adjusted Death Rate due to Suicide	2012-2016	deaths/ 100,000 population	12	12.9	13	10.2	8.3		18
1.28	Age-Adjusted Death Rate due to Alzheimer's Disease	2012-2016	deaths/ 100,000 population	22.5	31.9	26.6				18
1.05	Frequent Mental Distress	2016	percent	12.2	12.3	15				5

SCORE	MORTALITY DATA	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.35	Age-Adjusted Death Rate due to Pancreatic Cancer	2010-2014	deaths/ 100,000 population	12.2	10.8	10.9				8
2.28	Age-Adjusted Death Rate due to Oral Cancer	2010-2014	deaths/ 100,000 population	3.1	2.6	2.5	2.3			8
2.25	Age-Adjusted Death Rate due to Lung Cancer	2010-2014	deaths/ 100,000 population	56.4	50.7	44.7	45.5			8
1.95	Age-Adjusted Death Rate due to Cancer	2010-2014	deaths/ 100,000 population	182.3	172	166.1	161.4			8
1.85	Age-Adjusted Death Rate due to Colorectal Cancer	2010-2014	deaths/ 100,000 population	15.1	14.1	14.8	14.5	10.1		8
1.83	Age-Adjusted Death Rate due to Cerebrovascular Disease (Stroke)	2012-2016	deaths/ 100,000 population	41.9	43.1	36.9	34.8			18
1.80	Age-Adjusted Death Rate due to Heart Disease	2012-2016	deaths/ 100,000 population	199	161.3			161.5		18
1.58	Age-Adjusted Death Rate due to Suicide	2012-2016	deaths/ 100,000 population	12	12.9	13	10.2	8.3		18
1.35	Age-Adjusted Death Rate due to Motor Vehicle Collisions	2012-2016	deaths/ 100,000 population	16.8	14.1					18
1.33	Age-Adjusted Death Rate due to Influenza and Pneumonia	2012-2016	deaths/ 100,000 population	15.9	17.8	14.8		13.5		18
1.30	Age-Adjusted Death Rate due to Breast Cancer	2010-2014	deaths/ 100,000 females	21.5	21.6	21.2	20.7			8

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

1.28	Age-Adjusted Death Rate due to Alzheimer's Disease	2012-2016	deaths/ 100,000 population	22.5	31.9	26.6				18
1.28	Mortality Ranking	2018	ranking	16						5
1.13	Infant Mortality Rate	2012-2016	deaths/ 1,000 live births	6.6	7.2	6	6	6.3		18
1.10	Premature Death	2014-2016	years/ 100,000 population	6764.1	7281.1	6658.1				5
1.03	Age-Adjusted Death Rate due to Diabetes	2012-2016	deaths/ 100,000 population	19.2	23	21.1				18
0.95	Age-Adjusted Death Rate due to Prostate Cancer	2010-2014	deaths/ 100,000 males	19.5	21.6	20.1	21.8			8
0.90	Alcohol-Impaired Driving Deaths	2012-2016	percent	26.9	31.4	29.3		4.7		5
0.90	Death Rate due to Drug Poisoning	2014-2016	deaths/ 100,000 population	12	16.2	16.9				5
0.88	Age-Adjusted Death Rate due to Unintentional Injuries	2012-2016	deaths/ 100,000 population	30.2	31.9	41.4	36.4			18
0.75	Age-Adjusted Death Rate due to Unintentional Poisonings	2014-2016	deaths/ 100,000 population	10.1	15.1	15.4		9.9		3
0.70	Age-Adjusted Death Rate due to Firearms	2014-2016	deaths/ 100,000 population	9.7	12.7	11	9.3			3
0.58	Age-Adjusted Death Rate due to Homicide	2012-2016	deaths/ 100,000 population	3.9	6.2	5.5	5.5	6.7		18
0.53	Age-Adjusted Death Rate due to HIV	2012-2016	deaths/ 100,000 population	1.3	2.2	2	3.3			18

SCORE	OLDER ADULTS & AGING	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.55	Rheumatoid Arthritis or Osteoarthritis: Medicare Population	2015	percent	32.9	29.1	30				4
2.50	Asthma: Medicare Population	2015	percent	9.8	8.4	8.2				4
2.50	COPD: Medicare Population	2015	percent	15.7	11.9	11.2				4
2.50	Hyperlipidemia: Medicare Population	2015	percent	51.6	46.3	44.6				4
2.40	Chronic Kidney Disease: Medicare Population	2015	percent	20.3	19	18.1				4
2.35	Depression: Medicare Population	2015	percent	19.1	17.5	16.7				4
2.30	Ischemic Heart Disease: Medicare Population	2015	percent	35.7	24	26.5				4
2.15	Diabetes: Medicare Population	2015	percent	32.7	28.4	26.5				4
2.00	Hypertension: Medicare Population	2015	percent	62.6	58	55				4

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

1.95	Atrial Fibrillation: Medicare Population	2015	percent	8	7.7	8.1				4
1.95	Heart Failure: Medicare Population	2015	percent	15.2	12.5	13.5				4
1.90	Stroke: Medicare Population	2015	percent	4.1	3.9	4				4
1.80	Alzheimer's Disease or Dementia: Medicare Population	2015	percent	9.7	9.8	9.9				4
1.45	Cancer: Medicare Population	2015	percent	7.4	7.7	7.8				4
1.40	People 65+ Living Below Poverty Level	2012-2016	percent	9.7	9.7	9.3			Black or African American, Hispanic or Latino, Other	1
1.28	Age-Adjusted Death Rate due to Alzheimer's Disease	2012-2016	deaths/ 100,000 population	22.5	31.9	26.6				18
1.15	Mammography Screening: Medicare Population	2014	percent	68.6	67.9	63.1				20
1.05	People 65+ with Low Access to a Grocery Store	2015	percent	0.5						23
0.80	Osteoporosis: Medicare Population	2015	percent	4.4	5.4	6				4
0.75	Diabetic Monitoring: Medicare Population	2014	percent	90.1	88.8	85.2				20
0.50	People 65+ Living Alone	2012-2016	percent	23.3	26.8	26.4				1

SCORE	OTHER CHRONIC DISEASES	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.55	Rheumatoid Arthritis or Osteoarthritis: Medicare Population	2015	percent	32.9	29.1	30				4
2.40	Chronic Kidney Disease: Medicare Population	2015	percent	20.3	19	18.1				4
0.80	Osteoporosis: Medicare Population	2015	percent	4.4	5.4	6				4

SCORE	PREVENTION & SAFETY	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.40	Domestic Violence Deaths	2016	number	0						15
1.35	Age-Adjusted Death Rate due to Motor Vehicle Collisions	2012-2016	deaths/ 100,000 population	16.8	14.1					18
1.30	Severe Housing Problems	2010-2014	percent	14.9	16.6	18.8				5
0.90	Death Rate due to Drug Poisoning	2014-2016	deaths/ 100,000 population	12	16.2	16.9				5

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

0.88	Age-Adjusted Death Rate due to Unintentional Injuries	2012-2016	deaths/ 100,000 population	30.2	31.9	41.4	36.4			18
0.75	Age-Adjusted Death Rate due to Unintentional Poisonings	2014-2016	deaths/ 100,000 population	10.1	15.1	15.4		9.9		3
0.70	Age-Adjusted Death Rate due to Firearms	2014-2016	deaths/ 100,000 population	9.7	12.7	11	9.3			3

SCORE	PUBLIC SAFETY	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.40	Domestic Violence Deaths	2016	number	0						15
1.35	Age-Adjusted Death Rate due to Motor Vehicle Collisions	2012-2016	deaths/ 100,000 population	16.8	14.1					18
1.10	Property Crime Rate	2016	crimes/ 100,000 population	2010.3	2779.7					13
0.98	Violent Crime Rate	2016	crimes/ 100,000 population	176.8	374.9	386.3				13
0.90	Alcohol-Impaired Driving Deaths	2012-2016	percent	26.9	31.4	29.3		4.7		5
0.70	Age-Adjusted Death Rate due to Firearms	2014-2016	deaths/ 100,000 population	9.7	12.7	11	9.3			3
0.58	Age-Adjusted Death Rate due to Homicide	2012-2016	deaths/ 100,000 population	3.9	6.2	5.5	5.5	6.7		18

SCORE	RESPIRATORY DISEASES	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.50	Asthma: Medicare Population	2015	percent	9.8	8.4	8.2				4
2.50	COPD: Medicare Population	2015	percent	15.7	11.9	11.2				4
2.43	Tuberculosis Incidence Rate	2014	cases/ 100,000 population	3.4	2	3	1			12
2.25	Age-Adjusted Death Rate due to Lung Cancer	2010-2014	deaths/ 100,000 population	56.4	50.7	44.7	45.5			8
1.95	Lung and Bronchus Cancer Incidence Rate	2010-2014	cases/ 100,000 population	76.1	70	61.2			Male	8
1.33	Age-Adjusted Death Rate due to Influenza and Pneumonia	2012-2016	deaths/ 100,000 population	15.9	17.8	14.8		13.5		18
0.90	Age-Adjusted Hospitalization Rate due to Asthma	2014	hospitalizations/ 10,000 population	67.2	90.9					11

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

SCORE	SOCIAL ENVIRONMENT	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.70	Social Associations	2015	membership associations/ 10,000 population	8.4	11.5	9.3				5
2.50	Mean Travel Time to Work	2012-2016	minutes	29.4	24.1	26.1			Male	1
1.85	Linguistic Isolation	2012-2016	percent	3.1	2.5	4.5				1
1.70	People 25+ with a Bachelor's Degree or Higher	2012-2016	percent	21.2	29	30.3			65+, Other	1
1.65	Per Capita Income	2012-2016	dollars	23171	26779	29829			Asian, Black or African American, Hispanic or Latino, Other, Two or More Races	1
1.48	Persons with Health Insurance	2016	percent	87.1	87.8		100	92		19
1.43	Median Housing Unit Value	2012-2016	dollars	147500	157100	184700				1
1.40	Young Children Living Below Poverty Level	2012-2016	percent	25.4	27.3	23.6			Hispanic or Latino, Other	1
1.38	Median Household Gross Rent	2012-2016	dollars	787	816	949				1
1.35	People 25+ with a High School Degree or Higher	2012-2016	percent	85	86.3	87			65+, Male, Black or African American, Other	1
1.28	Social and Economic Factors Ranking	2018	ranking	16						5
1.25	Voter Turnout: Presidential Election	2016	percent	69.1	67.7					16
1.23	Median Monthly Owner Costs for Households without a Mortgage	2012-2016	dollars	367	376	462				1
1.20	Population 16+ in Civilian Labor Force	2012-2016	percent	64.7	61.5	63.1				1
1.15	Single-Parent Households	2012-2016	percent	31.8	35.7	33.6				1
1.00	Female Population 16+ in Civilian Labor Force	2012-2016	percent	59.8	57.4	58.3				1
0.98	Mortgaged Owners Median Monthly Household Costs	2012-2016	dollars	1226	1243	1491				1
0.90	Median Household Income	2012-2016	dollars	51980	48256	55322			Black or African American, Hispanic or Latino, Other	1
0.75	Children Living Below Poverty Level	2012-2016	percent	21.4	23.9	21.2			Black or African American, Hispanic or	1

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

									Latino, Other, Two or More Races	
0.75	People Living Below Poverty Level	2012-2016	percent	14.6	16.8	15.1		12.5	12-17, 6-11, <6, , Black or African American, Hispanic or Latino, Other, Two or More Races	1
0.60	Homeownership	2012-2016	percent	64.4	55.5	55.9				1
0.60	Total Employment Change	2014-2015	percent	6.5	3.1	2.5				22
0.50	People 65+ Living Alone	2012-2016	percent	23.3	26.8	26.4				1

SCORE	SUBSTANCE ABUSE	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.80	Adults who Smoke	2016	percent	17.8	17.9	17	12	13		5
1.65	Adults who Drink Excessively	2016	percent	18	16.7	18	25.4			5
1.43	Health Behaviors Ranking	2018	ranking	49						5
0.90	Alcohol-Impaired Driving Deaths	2012-2016	percent	26.9	31.4	29.3		4.7		5
0.90	Death Rate due to Drug Poisoning	2014-2016	deaths/ 100,000 population	12	16.2	16.9				5
0.70	Liquor Store Density	2015	stores/ 100,000 population	3.8	5.8	10.5				22

SCORE	TRANSPORTATION	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.50	Mean Travel Time to Work	2012-2016	minutes	29.4	24.1	26.1			Male	1
2.50	Solo Drivers with a Long Commute	2012-2016	percent	47.8	31.3	34.7				5
2.45	Workers who Walk to Work	2012-2016	percent	0.6	1.8	2.8	3.1		Other	1
2.20	Workers Commuting by Public Transportation	2012-2016	percent	0.2	1.1	5.1	5.5		20-24	1
1.90	Workers who Drive Alone to Work	2012-2016	percent	83.8	81.1	76.4			Female, Native Hawaiian or Other Pacific Islander, White, non-Hispanic	1

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

1.20	Households with No Car and Low Access to a Grocery Store	2015	percent	2.6						23
0.50	Households without a Vehicle	2012-2016	percent	4.4	6.3	9				1

SCORE	WELLNESS & LIFESTYLE	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
1.65	Self-Reported General Health Assessment: Poor or Fair	2016	percent	16.8	17.6	16		9.9		5
1.60	Life Expectancy for Males	2014	years	75.4	75.4	76.7		79.5		7
1.50	Insufficient Sleep	2016	percent	34	33.8	38				5
1.50	Poor Physical Health: Average Number of Days	2016	days	3.7	3.6	3.7				5
1.30	Life Expectancy for Females	2014	years	80.2	80.2	81.5		79.5		7
1.28	Morbidity Ranking	2018	ranking	20						5
1.20	Frequent Physical Distress	2016	percent	11.5	11.3	15				5

SCORE	WOMEN'S HEALTH	MEASUREMENT PERIOD	UNITS	JOHNSTON COUNTY	NORTH CAROLINA	U.S.	HP2020	HEALTHY NC 2020	HIGH DISPARITY*	SOURCE
2.28	Cervical Cancer Incidence Rate	2010-2014	cases/ 100,000 females	9.6	7.2	7.5	7.3			8
1.40	Domestic Violence Deaths	2016	number	0						15
1.30	Age-Adjusted Death Rate due to Breast Cancer	2010-2014	deaths/ 100,000 females	21.5	21.6	21.2	20.7			8
1.30	Life Expectancy for Females	2014	years	80.2	80.2	81.5		79.5		7
1.15	Mammography Screening: Medicare Population	2014	percent	68.6	67.9	63.1				20
0.90	Breast Cancer Incidence Rate	2010-2014	cases/ 100,000 females	114.3	129.4	123.5				8
0.30	Ovarian Cancer Incidence Rate	2010-2014	cases/ 100,000 females	8.7	10.9	11.4				8

*High Disparity includes differences in which subgroups do significantly better or significantly worse than the overall county value. Subgroup values are given in parentheses.

Sources

Table 24 displays the list of sources used in secondary data scoring. Number keys are referenced alongside each indicator in the Indicator Scoring Table.

Table 24. Indicator Sources and Corresponding Number Keys

Number Key	Source
1	American Community Survey
2	American Lung Association
3	Centers for Disease Control and Prevention
4	Centers for Medicare & Medicaid Services
5	County Health Rankings
6	Feeding America
7	Institute for Health Metrics and Evaluation
8	National Cancer Institute
9	National Center for Education Statistics
10	National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
11	North Carolina Department of Health and Human Services
12	North Carolina Department of Health and Human Services, Communicable Disease Branch
13	North Carolina Department of Justice
14	North Carolina Department of Public Instruction
15	North Carolina Department of Public Safety
16	North Carolina State Board of Elections
17	North Carolina State Center for Health Statistics
18	North Carolina State Center for Health Statistics, Vital Statistics
19	Small Area Health Insurance Estimates
20	The Dartmouth Atlas of Health Care
21	U.S. Bureau of Labor Statistics
22	U.S. Census - County Business Patterns
23	U.S. Department of Agriculture - Food Environment Atlas
24	U.S. Environmental Protection Agency